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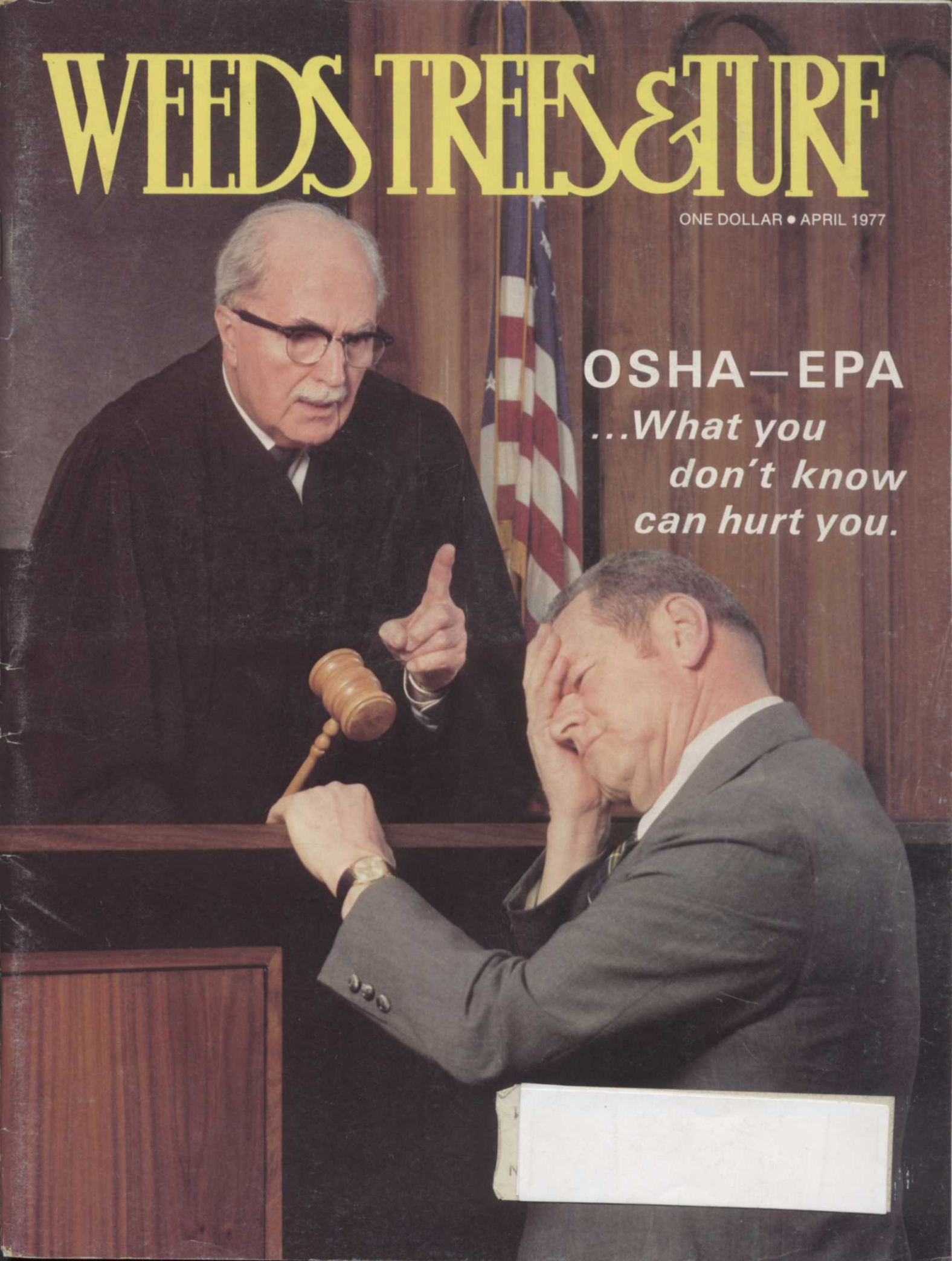
ONE DOLLAR • APRIL 1977



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ON THE COVER: If you don't understand EPA and OSHA enforcement policies you could wind up in court. See related stories on pages 12 and 13.

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For the past several years, SPIKE has been tested in actual field situations with commercial equipment. When applied in accordance with label directions, SPIKE will result in a high level of long lasting total vegetation control.

Test plot demonstrates dramatic result of single application of SPIKE. ▶

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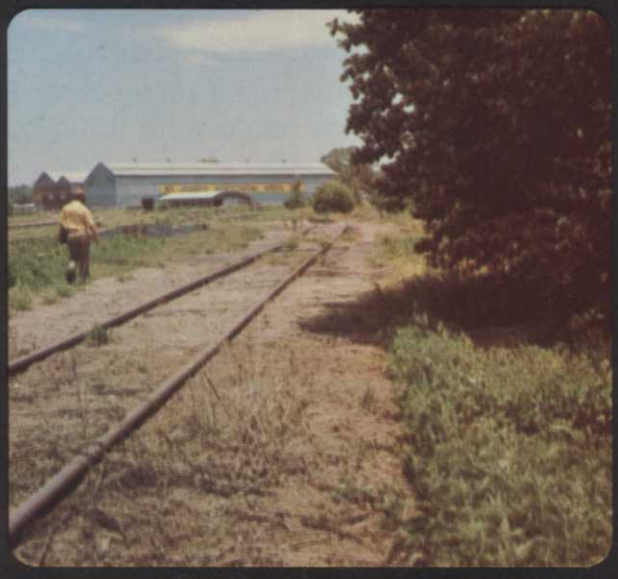

Missouri test plot treated with SPIKE shows residual control 2 years later! ▶

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Five years of development and more than three years of extensive nationwide on-site testing in non-crop areas have proven SPIKE highly effective in the control of a wide spectrum of vegetation, including many of the so-called hard-to-control species. SPIKE effectively controls many tough perennials, as well as many woody brush and vine-type species that escape other control products.

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TO OUR READERS

While in Washington gathering material for our EPA story (see page 12), I spoke with several EPA officials including Stanley W. Legro, EPA Assistant Administrator for Enforcement.

Mr. Legro had recently spoken at the Arborists' National Meeting and, after a brief discussion, agreed his thoughts, presented there, were applicable to all of us involved in the Green Industries.

In fairness, we turn over our editorial space this month to Mr. Legro who has graciously prepared these thoughts for us on where the EPA enforcement branch and the Green Industries stand today.

You are environmentalists in the finest sense. Proper use of pesticides and fungicides is an environmental plus in that it helps to protect and preserve trees and other greenery which are of vital importance to maintaining a high quality environment, particularly in our urbanized areas.

Benefits of mutual cooperation

There are great benefits to be obtained from our mutual cooperation. This can help us to avoid unnecessary controls and to reduce regulation. By having effective requirements for training for use of dangerous pesticides under the certified applicator program, we can help to insure maximum availability of pesticides to you and to others who are qualified to use them. Many of you are leading citizens in your communities and take pride in the professional standards of your work; EPA wants to cooperate with you to regulate those who do not hold the same high standards, to keep your profession from unfairly getting a bad name and to avoid unnecessary regulation of the many of you who are well qualified to prevent abuses by those who are not.

A brief look at the structure of FIFRA

In simple terms, the Agency's program to control the use of pesticides and fungicides involves three elements: determination that a pesticide can be sold; a determination of the contents for the label; and insuring that the pesticide is used in accordance with the label.

The registration process reviews the efficacy and benefits to be obtained and balances those against the risk of harm. The risk assessment includes toxicity, use patterns and controls, and persistence of the pesticide. After doing a risk vs. benefit analysis, a decision is made either that the pesticide cannot be registered at all or that it can be registered for specific target pests under specified conditions. If it is registered, it can be registered for restricted use only by certified applicators, or it can be registered for general use by the public. A label must be placed on each pesticide container describing the contents and the manner in which it must be used.

The responsibility of our enforcement programs, carried out through our own small staff of consumer safety officers and in cooperation with state officials, consists of insuring that unregistered pesticides are not made or used and that registered pesticides are formulated and labeled in accordance with their registration and used in accordance with the label. Where a mususe occurs, a careful evaluation by our Pesticides Misuse Review Committee is conducted before determining what action to take.

Pesticide Enforcement Policy Statements (PEPS) and guidance

In close cooperation with state officials and other interested persons, we have prepared PEPS and Guidance to enable us to achieve the goals of the Act while at the same time avoiding unnecessary regulatory burdens which do not produce positive results. For example, among the PEPS we have issued is PEPS No. 5, providing for use of pesticides against nontarget pests in agricultural and other nonstructural pest control areas. This PEPS would enable you under the circumstances described in the PEPS, to use a pesticide under the appropriate circumstances for pests not listed as target pests on the label where that would be environmentally sound and avoid undue cost and inconvenience. Another example is PEPS No. 6 dealing with service containers in the structural pest control industry. You should read each PEPS closely to determine the exact conditions. Copies are available to you.

Future outlook

We are considering the possibility of either expanding PEPS No. 6 or preparing a new PEPS to provide for use and labeling of service containers in your industry. We would look forward to your suggestions and cooperation in this regard as well as with respect to other suggestions you may have as to areas where PEPS are appropriate. In another area of future interest to you, because of policy reasons and resource constraints, we plan to conduct use inspections in only a very small number of cases. In setting our priorities of whom to inspect, we will be looking at voluntary submissions that those in the industry make regarding their training programs. Obviously it would not make sense for us to spend many resources inspecting those who have adequate training programs. Accordingly, I believe that leaders in your industry can help us to determine what constitute adequate training programs. We can work together in this regard to ensure environmental quality of pesticide use and to direct use inspections where they are most needed. □

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USS Tournament Plus 19-5-9... We'll help put the green back in your fairways!

If you're looking down yellow or off color fairways, take a walk on them with your local USS Vertagreen distributor as soon as possible. He'll show you how USS Tournament Plus 19-5-9 can be the answer to your problems. This great product, developed especially for fairways, will release 48% of its nitrogen content in a sustained, uniform manner because of the urea-formaldehyde content. And that deep, dark green color will come from the sulfate of potash.

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Government News

Under a $91,773 trust fund cooperative agreement with the Florida Department of Natural Resources, the U.S.D.A. will evaluate new chemicals and techniques to control Hydrilla and other aquatic weeds.

Hydrilla verticillata Royle, a pest weed widespread in Florida and beginning to appear in other sections of the U.S., is a noxious submerged weed that chokes ponds, lakes, streams, and canals. It interferes with drainage for flood control, the use of water for irrigated agriculture, and it seriously restricts the use of water for navigation, wildlife, and recreation.

James Varley & Sons Inc., a St. Louis, Mo. firm, was slapped with a $7,500 civil penalty by EPA in a Region VII pesticide enforcement action. EPA alleged several products the company was distributing--Varco Restaurant Disinfectant and Sanitizer, Creme Cote Multi-Purpose Cleaner, and Mint Odor Wincide Disinfectant--were misbranded.

In another pesticide enforcement action, EPA assessed a $480 penalty against Parkway Research Corp., of Miami, Fla., for shipping Instant Kill and Grass Tox. The products were not registered, EPA officials claimed.

According to the findings of researchers at Ohio State University, Department of Plant Pathology, only 19 percent of ornamental plant diseases can be treated with products currently registered. Of 296 ornamental plant diseases, 23 percent of the registrations for the diseases were available "through some sort of grouped or lumped labeling that does not specifically mention the host, the pathogen, or both. Thirty-nine percent of the hosts listed are not specifically mentioned on any of the 681 registrations for any of the 296 diseases listed."

The study concluded that pesticide manufacturers need the grouped labeling method to avoid liabilities and prohibitive costs inherent in developing specialty products. The researchers urged public subsidy insurance programs to help manufacturers.

The U.S.D.A. has moved to give plant seed developers filing for patent-type protection in a foreign country an additional year to file for parent protection in the United States.

Amendments to the Plant Variety Protection Act will also make regulations more uniform for abandoned or lapsed applications and eliminate delays caused by collecting seed samples and fees separately. The five-year grace period granted to foreign developers to file for parent protection in the U.S. is in keeping with policies of other countries who administer "grow out" tests to evaluate new plant varieties.

Industry News

Conservation cover plants released

Plant breeders of the Agricultural Experiment Station at the Pennsylvania State University have released Lathco flatpea and Tioga deertongue grass as conservation cover plants. Latho flatpea is useful on old logging roads, transmission lines and pipelines, roadbanks and mine spoils.

Tioga deertongue grass is highly tolerant of acid soils and toxicity from aluminum and manganese. Its greatest use, according to the breeders, will be to help revegetate acid spoil banks and refuse banks.

Park system OK'd for Santa Monica

A master plan for the development of a 25,000-acre park system in the Santa Monica Mountains has been approved and construction is expected to begin within a year.

Parks will be built at Point Mugu, Malibu Creek and Topanga, and will incorporate many new features. Among these are a model farm, an American Indian cultural center, and 108 miles of hiking trails.

Parking areas, hotels, campgrounds and picnic areas will be placed on the fringes of each park so that most of the land can remain in a natural state.

USDA certifies new Lofts grasses

Lofts Pedigreed Seed, Inc. recently announced receiving Plant Protection Certificates for both their Yorktown and Diplomat Perennial Ryegrasses.

It takes from two to five years to get a certificate from the U.S.D.A., during which time it must be proven that the seed is both new and superior.

Dr. Fred Ledeboer, director of research for the company, said that Yorktown produces grass distinguished by dark green color. It produces excellent turf when grown in a cold, humid environment and is resistant to leaf blights, he said.

Diplomat produces grass that has fine texture and a medium green color. Improved mowability and good summer performance are characteristics of Diplomat, he said.

Urban forestry works available

A compilation of the works of arboriculturists and urban forestry scientists from all over the world has been published by the University of Toronto Press.

Entitled, "Trees and Forests for Human Settlements", the paperback edition contains the full texts of 38 papers presented during symposia at the United Nations Habitat Forum, Vancouver, British Columbia, and at the 16th International Union of Forestry Research Organization, World Congress, Oslo, Norway.

The book is available from the Centre for Urban Forestry Studies, University of Toronto, 203 College Street, Toronto, Ontario, Canada M5S 1A1. Copies are $5.00.

Perlite Institute offers data sheet

Perlite Institute, Inc. has published a two-page data sheet titled "Horticultural Perlite for Successful Planting."

Covered in the new publication is a description, availability and properties of horticultural perlite. Also detailed are propagation, all purpose and soil amendment grades of horticultural perlite for rooting cuttings, potting and for lawn, flower and vegetable growing applications. Weight comparisons for loam and perlite-peat moss mixtures are included.

Copies of Bulletin HP-77, "Horticultural Perlite for Successful Planting," may be obtained from Perlite Institute, Inc., 45 West 45 Street, New York, NY 10036.

Brouwer expands Canadian plant

Brouwer Turf Equipment Limited, with a factory and offices located on a 50-acre site near Toronto, Canada, has completed a 38,000 sq. ft. expansion to this plant.

Brouwer's entry into the reel mower production and increased demand for harvesting equipment created the need for the additional space. The plant was opened in 1974 solely for the production of the company's sod harvester.

5000 attend GCSAA show

A record 5,200 people attended the 48th International Turfgrass Conference and Show in Portland, OR. sponsored by the GCSAA in February.

More than 1,000 GCSAA members were present, according to early tabulations.

The two attractions were the educational sessions and the displays of 166 exhibitors.

Fifty-seven experts in turf management and various aspects of research, equipment, chemicals and management conducted more than 39 hours of actual educational experiences.

Four preconference seminars attracted 126 superintendent-students and 17 others took the rigorous six-hour certification examination. Of those, 13 passed all portions of the exam becoming Certified Golf Course Superintendents. One is Thomas Malehorn, 23, golf course superintendent at Red Lion (PA) Country Club, the youngest superintendent ever certified. □

People on the Move

Erwin B. Anhaeuser has been appointed manager of manufacturing operations for FMC Corp. sweeper division. He has a B.S. degree in economics from Neuwied School of Business in Nuwied, Germany.

Brian A. Gittings has joined ICI United States Inc. as a product marketing specialist. In his new position, Gittings will be responsible for marketing and sales of methanol from the agricultural division of Imperial Chemical Industries Ltd. and various products from the ICI petrochemicals division. He received a B.A. degree from Newcastle University, England.

Dr. James Beard, professor of turfgrass physiology at Texas A&M university, participated in a three-week lecture tour in Australia as a guest of the Australia Turfgrass Industry. Beard also toured New Zealand for a week.

Ted Zeller has been appointed president of Target Chemical Co. Formerly the general manager of the company, Zeller is a licensed pest control advisor in seven licensed categories. He resides with his wife and three children in Villa Park, CA.

Renee Kierney has joined Melnor Industries as public relation administrator. She will be responsible for all phases of public relations and sales promotion activities. Kierney was formerly a senior copy writer with McGraw-Hill and also worked as a promotional writer for the New York Times. She is a graduate of the University of Berlin.

Ciba-Geigy Corp. has transferrred **Smyth Van Sickle,** a senior market research analyst, to an Ohio sales territory for its agricultural division. Van Sickle is an agricultural science graduate of Ohio State University.

Lauren Collins

Renee Kierney

Ted Zeller

Dr. Elias Fereres has been appointed as a research specialist at the newly formed extension irrigation branch of the University of California, Davis. He will develop research programs in irrigation efficiency, plant-soil-water relationships and irrigation engineering. Fereres studied agronomy and engineering at the University of Madrid and received a Ph.D. in ecology at UC, Davis.

Diamond Shamrock Corp., agricultural chemicals division, announced new territories for three of its sales specialists. **Nathaniel Brooks** will now cover Kansas, Nebraska and Colorado, Howard A. Kohrmann will represent northeast Texas and southwest Louisiana. **Braden J. Surrena** is responsible for Michigan and Indiana.

Lauren W. Collins was recently appointed to the Engineering and Research Center, carburetor division, Walbro. Corp. Collins has an M.S. in mechanican engineering from the University of Toledo.

John E. Davies has been named general manager of the agricultural division of Rhodia Inc. Formerly vice president for marketing at Amchem Products Inc., Davies holds a B.S. degree in pharmacy from the University of Iowa and an M.B.A. from Pace University.

James T. Paul has joined Elanco Products Co. as an agricultural chemicals sales representative in the Illinois area. □

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Broad-spectrum Daconil 2787 fungicide controls nearly all fungus diseases found on golf greens, tees and fairways, as well as many ornamentals.

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EPA: Understanding enforcement

by Gail Hogan

"I would get up and make speeches and people would throw rocks at me and say, 'You mean if we use less than the pesticide that's on the label to control the pest, you're going to sue us?' And I would say, 'No, we're not!' And nobody would believe me."

So you think you have problems with the enforcement arm of the EPA? The above statement was made in an exclusive interview with Augustine Conroy II, director of the pesticides and toxic substances division of the office of the Assistant Administrator for EPA Enforcement. Other officials made similar comments.

Conroy was referring to the misunderstandings that resulted from amendments to the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), misunderstandings that, in part, exist today.

The amendments, signed into law by the President on October of 1972, strengthened the vague FIFRA.

The new amendments prohibited any person from using any registered pesticide "in a manner inconsistent with its labeling," provided for classification of pesticides into "general" and "restricted" categories, limited those who could apply "restricted" pesticides, and gave EPA new powers of enforcement such as stop sale and removal orders, the power to initiate seizure actions, the authority to require manufacturers to register pesticide producing establishments, and the power to initiate civil or criminal proceedings against violators.

In the years that followed, EPA's enforcement arm focused its strategy on ensuring compliance of manufacturers and users through producer establishment inspections, pesticide sampling, pesticide analysis and use surveillance.

With their strengthened powers, EPA was able to "clean up the industry," according to Conroy. "With the ability to initiate civil penalties for pre-market clearance of pesticides, we were able to turn around violations and fine companies in 60 to 90 days. When we could only initiate criminal penalties it would take about 18 months, as we had to go through the U.S. Attorney and the Justice Department."

Civil cases involving registration and labeling are handled in EPA offices. If the violator wants a hearing, he is entitled to one. The EPA Administrative Law Judge hears both sides of the case. He then submits his decision to the regional administrator (there are ten). Appeals go through the Appellate Court in the violator's district.

"Industry is pretty well on board and they know what they're doing now and so do we," Conroy emphasizes. "We used to have something like 300 violations of non-registered pesticides a year. Now we're down to 25, and I think that comes about as a result of our enforcing the statute the way it was intended to be.

"We've cleaned up. They (manufacturers) are shipping out products that are registered and they are labeled more or less the way they should be. That doesn't mean that I agree they ought to be registered in the first place," he adds.

But the other enforcement aspect, user violation, is another story. Of the 72 amendments over jurisdiction, only one applies and it does so with the phrase, "anyone who uses a registered pesticide inconsistent with its labeling is in violation." This, says Conroy, is a very, very limited jurisdiction.

EPA has taken a narrow view of the inconsistent phrase, Conroy says. "We interpreted it to mean exactly what it says. If you use a pesticide in any other way than on the label, it's a violation.

"That's when I got those rocks thrown at me. I was trying to explain that, yes, not using enough was a violation, but we were using discretion and saying we won't prosecute you for that. We were going to take these violators on a case-by-case basis."

The EPA decided to get this

Continued on page 17

OSHA: A businessman's guide

by Anthony J. Obadal

The Occupational Safety and Health Act of 1970 became effective on April 28, 1971. That date marked the end of another protracted battle between business and labor interests. The date also, however, marked the beginning of a continuing series of skirmishes concerning the application and interpretation of the Act. These encounters occur at the rulemaking level, on the jobsite, before administrative law judges and the Occupational Safety and Health Review Commission, and in the federal courts. Additionally, battles are fought in Congress over the enactment of possible amendments to the Act.

Clearly, numerous legal issues arise under this Act which are of vital concern to employers. This is a short summary of what you, as employers, can do to protect yourselves from becoming entangled in the intricacies of OSHA. But be forewarned, this is not a do-it-yourself course in how to avoid OSHA problems. It is not a substitute for a sound health and safety program and appropriate legal advice. With that reservation in mind, let us proceed with the outline of the three major areas of OSHA law.

The general duty clause

The principle case interpreting Section 5(a) (1), the "general duty clause," is found in the federal court case National Realty & Construction Company v. OSAHRC. No effort to understand the Act can be complete without a knowledge of this case.

In National Realty the government charged an employer with a violation of his duty to "furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or likely to cause death or serious physical harm to his employees," charging that the employer had permitted an employer to ride on the running board of a front-end loader. That rather simple factual case gave rise to a significant opinion by the United States Court of Appeals for the District of Columbia, which concluded that while employers have a duty to do everything possible to prevent hazardous conduct by employers, that duty does not extend so far as to mandate that the employer be guarantor of employer conduct.

The court went on to elaborate upon the elements necessary for a general duty violation. First, a recognized hazard must be one within the common knowledge of safety experts in the industry or known as a hazard by the particular employer. For example, does your experience as an employer provide you with knowledge of any particularly hazardous work? In one case, Brennan v. OSAHRC and Vy Lactos Laboratories, Inc.., the court concluded that an employer's tests which demonstrated damage was sufficient for knowledge of a hazard, even though no specific industry code or standard was involved.

The National Realty court also found that precautions to correct the recognized hazard must be feasible. This feasibility test was articulated in following, often-quoted language, when the court said that because of the broad definition of the general duty clause: The Secretary (of Labor) must be constrained to specify the particular steps a cited employer should have taken to avoid the citation, and to demonstrate the feasibility and likely utility of those measures.

The court went on to say: Only by requiring the Secretary (of Labor) at the hearing to formulate and defend his own theory of what a cited defendant should have to do, can the Commission and the Courts assure even handed enforcement of this clause.

The summary, the National Realty court stopped short of imposing an absolute duty on employers to prevent accidents. However, it did recognize that final responsibility for safety rests with the employer and that that duty cannot be waived or diminished by such factors as contributory negligence or assumption of risk on the part of your employees. Furthermore, employers should note that among the feasible precautions that they

Continued on page 18

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enforcement

Continued from page 12

word out in print. Two years ago they began putting out a series of Pesticide Enforcement Policy Statements (PEPS). "This was our way of telling the consumer ahead of time how we felt about something," explains Conroy. "For example, if you're using less than the label dosage and it's effective, we aren't going to prosecute you for that."

What is the status of user violation enforcement today? EPA now has a Pesticide Misuse Review Committee (PMRC) established for the purpose of reviewing each case of alleged misuse. Allegations may come from one of the ten EPA regional enforcement offices, the EPA surveillance program, FDA residual reports, USDA residual reports, other government reports, trade groups or private citizens.

The PMRC consists of personnel from the Agency's Office of General Counsel, Office of Enforcement, and the Office of Pesticide Programs.

The committee's responsibilities include determining whether a registered pesticide has been misused, what level of enforcement action is warranted, whether the FIFRA is being applied in misuse cases, whether patterns of misuse are identifiable and if label or registration amendments are needed for specific pesticides or classes of pesticide products.

Conroy puts the PMRC this way. "We all three sit down at a table and say, 'Hey, that is a violation of the inconsistent statute because of this reason or this reason and because it's so serious, we think it ought to go to criminal court. Or because it's not quite so serious that we should take civil action, or maybe just send a warning letter."

The results of the committee are then sent to the regional office involved who proceeds with the action. Conroy says the EPA is now in a formulative stage in the area of pesticide misuse cases. "Now we want to see all cases as they occur so that we can devise policies and guideline on how to handle them with the idea of eventually turning these responsibilities over to the regional administrators."

To date there have been 211 cases of user misuse. Figures on the penalties were not available, but the penalties are as follows:

User violators fall into two categories — noncommercial and commercial (commercial applicators, producers, manufacturers). In noncommercial civil action cases, violators receive a warning letter for the first offense, and for the second offense a possible fine of up to $1000. In a criminal action the violator may be fined $1000 and receive a 30-day jail sentence.

For commercial violators, a civil action penalty can be a fine of up to $5000. For a convicted criminal violator, the penalty can be a fine of up to $25,000 and a one-year jail term.

But, points out Conroy, for a misuse case to reach criminal court, there has to be a knowing violation with very serious consequences such as a death. (See box.) To date the EPA has collected ten million dollars for pesticide violators, both manufacturers and users. Where has the money gone? That's another story. □

PMRC Case No. 18

The case involved the use of OLIN PARATHION 2 percent DUST on a watermelon crop near Nixon TX on June 22, 1974. Three teenagers were instructed by the property owner to apply the insecticide (by shaking a burlap bag) containing the pesticide over the watermelon plants.

The boys were equipped only with respirators and were dressed in lightweight shirts and trousers. They did not wear gloves, goggles or other clothing to protect exposed skin and eyes as required by the products labelling.

The owner supervised the dusting program operation for one hour before leaving. Later, the boys began removing their respirators while continuing to work.

An hour later one of the three boys became seriously ill and was taken to a doctor's office where he was pronounced dead from acute pesticide poisoning. The second boy recovered from the exposure after hospital treatment, while the third boy, the last to remove his equipment, showed no symptom of poisoning.

The labelling of the pesticide a) contained signal words "Danger" and "Poison" with skull and cross bones insignia, warning of the product's toxicity, its danger to humans upon inhalation and swallowing, and absorption through exposed skin or eyes; and b) prescribed the use of rubber gloves, protective clothing, goggles, and mask or respirator; and c) listed antidote and treatment instructions in the event of poisoning symptoms.

The manager of the local feed store, where the pesticide was purchased, stated that he had reviewed the labelling thoroughly with the crop owner. The crop owner also reviewed the labelling and instructions with the hired boys. The owner was clearly knowledgeable of the product's labelling prohibition's regarding human exposure and the requirements for protective clothing.

The PMRC determined that the owner knowingly instructed the use of the parathion in a manner inconsistent with warnings and cautions on the product labelling. Further, the owner, in his capacity as supervisor of the three boys, failed to insure that proper precautions were maintained throughout the pesticide's application. The committee recommended that criminal prosecution of the crop owner should be pursued under FIFRA section 14 (b) (2) for the use of a registered pesticide in violation of section 12(a) (2) (G). On March 12, 1975, the EPA office in Region VI referred the case to the U.S. Attorney recommending criminal prosecution of the crop owner.

The defendant entered a plea of no contest and was fined $250.

OSHA guide

Continued from page 13

must take are care in hiring and adequate training to prevent injury. By following these steps you provide safety for your employees and your attorney with a major line of defense in many situations when you contest an OSHA citation.

The court skirted the interesting and vitally important issue of whether the general duty clause is so vague as to violate the due process requirement of the Fifth Amendment. The issue was originally raised in 1970, when the Minority Report asserted that the Act did not provide, as laws must, a clear path along which those who must comply can travel. The unfair feature of Section 5(a) (1) is that there are no criteria available to advise employers, in advance, of what is required of them. It is only after OSHA cites an employer that he is made aware of what was expected of him to do to avoid violating the Act. Many attorneys believe that this issue must ultimately be resolved by the Supreme Court.

To summarize the general duty clause, here are a few principles which have evolved out of the general duty cases. Where an accident results from unforeseeable employee negligence or misconduct, there may be no violation. Similarly, where an employee acts contrary to repeated warnings about safe operating techniques, there may be no violation. However, where an employer acts contrary to employer's safety rules which are not enforced, there probably will be violation. Finally, the showing of a hazard without a showing of feasible corrective measures, is insufficient to sustain a violation.

While the employer's burden is heavy, the Courts recognize reasonable limits on that burden. As the U. S. Court of Appeals for the Fifth Circuit said: "If employers are told that they are liable for violations regardless of the degree of their efforts to comply, it can only tend to discourage such efforts . . . ." Horne Plumbing and Heating Company v. OSAHRC & Dunlop.

The specific standard clause

Section 5(a) (2) of the Act delegates the Secretary of Labor the power to set specific standards. There are two methods by which this activity could occur. The first gave the Secretary authority for a two-year period to adopt and promulgate, without public rulemaking, all existing federal safety and health standards and existing national consensus standards relating to safety and health. This authority has expired.

It is only after OSHA cites an employer that he is made aware of what was expected of him to do to avoid violating the Act.

The second method provides for the setting of standards by means of the rulemaking procedure, which involves public notice and informal hearings. It is under this latter authority that the standards for maintenance of utility lines has been promulgated. Employers and associations should take advantage of their right to participate in the process of making standards which affect your business or industry. Failure to do so might mean that your side of the issue may never be aired, with unfavorable standards as a consequence.

Even when unfavorable standards are promulgated, they may be challenged in the courts. Both business and labor have had success in this regard. For instance, Bethlehem Steel Corporation filed suit in the U. S. Court of Appeals for the Third Circuit, challenging the validity of a paragraph in the OSHA regulations relating to industrial slings, on the grounds that affected parties had not received adequate notice and opportunity to comment. The court vacated the standard and remanded the case to the Secretary of Labor, where the standard was later deleted. Bethlehem Steel Corp. v. Dunlop.

Employers may also challenge a specific standard as a defense during a contest to a citation, arguing that it is unenforceable because it is unreasonable on the grounds of vagueness. Modern Automotive Service, Inc.

In Hoffman Construction Company v. OSAHRC & Dunlop, the OSHA "personal protective equipment" standard which states (t)he employer is responsible for requiring the wearing of appropriate personal protective equipment in all operations where there is an exposure to hazardous conditions . . . The employer, who was cited because his workers were not wearing safety belts when working above the ground, argued that the standard was so vague that no employer could reasonably be advised of the kind of conduct required to achieve compliance. The employer won. However, other Circuit Courts of Appeals have upheld the personal protective equipment standard as not being void for vagueness.

There are, in addition to attacking a standard's interpretation as vague, a number of other important issues which you should be acquainted with regarding specific standard citations. In the first place, just the showing of a standards breach is not sufficient for a violation. This is not a strict liability situation, similar to what is developing in tort law. The Secretary of Labor must not only establish that a breach of a specific standard occurred but that the employer knew or "with the exercise of reasonable diligence, should have known of the existence of the violation." North American Rockwell Corp. Here the Review Commission held that the existence of airborne asbestos fibers in excess of the health regulations was not a violation. The Seventh Circuit affirmed, stating that: It was not the purpose of the Act to make an employer an insurer of the safety of his men. . . The employer's task is difficult enough without adding responsibility for potentially hazardous conduct of which the employer is unaware. . . .

The Ninth Circuit followed this reasoning in Brennan v. OSAHRC and Alsea Lumber Co. when it held that an element of proof of both serious and nonserious violations is knowledge. Furthermore, the onus is on the Secretary of Labor to come forward with the proof and not on the employer to demonstrate his lack of knowledge. The Court said: "To revive the citation . . . would be to subject an employer to a standard of strict liability, under the special duty clause, for deliberate employee misconduct. We do not find that result to be within the intent of the Congress."

Businessmen involved in tree trimming should be aware of a 1975 case in which the Review Commission ruled that the use of ballistic nylon leggings by employees where clearing a wooded area was not required under the Act. The use of such chaps was not the custom in the industry and therefore not required. Asplundh Tree Expert Company.

Some major OSHA principles and developments

Search Warrants

Are announced OSHA inspections of the workplace without search warrants permitted by the Fourth Amendment of the U. S. Constitution? The Supreme Court is now considering this issue in Barlow's, Inc. v. Usery.

The case arose when the employer barred an OSHA compliance officer from inspecting his premises on the grounds the government did not have a search warrant. OSHA sought a federal court order compelling inspection. The Court refused, stating that the action "is unconstitutional and void in that it directly offends against the prohibition of the Fourth Amendment of the Constitution of the United States of America," which guards against government searches without warrants first obtained upon a showing a probable cause to believe that a violation has been committed. If the Supreme Court upholds the decision, OSHA would be barred access to worksites where it could not receive permission from a federal judge. The effect would eliminate warrantless OSHA inspections unless consented to by the employer.

Right to a jury trial

Pending before the U. S. Supreme Court are two cases where the employers have argued that the Act is violative of the Seventh Amendment to the U. S. Constitution in that jury trials are not allowed on the existence of a violation. Frank Irey, Jr., Inc. v. OSAHRC and Atlas Roofing Co., Inc. v. OSAHRC. Last year similar Federal Coal Mine Health and Safety Act penalties were upheld by the Court as civil in nature and requests for jury trials were denied.

Refusals by employees of allegedly unsafe work

In Usery v. Whirlpool Corp. employess refused to clean a large guard screen over a conveyor. They were given written reprimands and lost six hours pay. The court rejected the employees' suit and invalidated a Department of Labor regulation, which justified their walking off the job, as inconsistent with Congress' interest when it passed the Act. See Dunlop v. Daniel Construction Co., Inc.

However, there is more recent authority to the contrary. In Usery v. The Babcock and Wilcox Co. a federal court held that the Act prohibits an employer from discharging employees for refusing to perform work assignments which they believe to be dangerous. Thus, until this issue is resolved by the Supreme Court or the U. S. Courts of Appeals having jurisdiction in your geographic area, be wary of reprimanding any employees for refusing work on safety grounds.

Employer liability for employee refusal to comply with safety standards

In two cases where employers took all steps, short of termination, to educate their employees to wear hard hats, the Courts of Appeals held that they were still liable for their employees' refusal to wear the hats. Atlantic & Gulf Stevedores, Inc. v. OSAHRC and ITO Corp. v. OSAHRC and Usery. Thus, employees must, to avoid citations under the Act take all steps in their power to obtain employer compliance. The cases make clear that these steps include suspension and discharge if necessary.

Do not interfere with an investigation

The federal court in Massachusetts issued an order restraining a firm from discriminating against or threatening any of its employers who cooperated with an investigation of alleged violations. Usery v. New England Telephone & Telegraph Co. The firm's actions? According to the Department of Labor's complaint, a plant manager and an attorney told two employees not to speak with any investigators who were preparing for a hearing outside of the presence of a company attorney. Similarly, imposing a fine upon an employee for filing a safety complaint is also a violation of the Act. In Dunlop v. Trumbull Asphalt Co., Inc., the court ordered the firm to rehire the employee and pay him his back salary from date of discharge to date of the court decision.

Conclusion

This brief review should acquaint you with some of the major principles of the Act which substantially affect employers' interest. The review is merely a tool to assist you in complying and showing your compliance with the Act. A creative safety and health program ultimately is the best defense to a charge of an OSHA violation. □

Anthony J. Obdal is an attorney with the firm Zimmerman and Obdal, 1101, 1101 15th St. N.W., Washington, D.C.

Fact: A Fungicide Insurance that Doesn't Cost...it Pays

Exhalt® 800

Now, from the Trimec people, the Sticker-Extender that protects your fungicide investment, may even double or triple its effective life and reduce costs proportionately. Read why you shouldn't spray without it.

Applying fungicides is one thing. Keeping them on turf and foliage in working strength through drenching rains, irrigation and weathering—that's the challenge!

Exhalt800 is the answer. It's Gordon's Sticker-Extender that works full time. Prolongs fungicide life. Permits applications using minimum label recommendations. Resists wash-off and weather erosion. It's a fascinating story.

Exhalt800 encapsulates and sticks fungicides to turf and foliage, essentially on contact. It flexes with leaf growth, releases fungicide slowly, lets plant "breathe" — extends the control period up to 300%.

Even if it rains an hour after application, you still get full extender activity — full fungicide effectiveness. With less wash-off, less build-up in soil to threaten the environment.

And your savings during a season can be substantial. Because you'll use less fungicide with each spray, apply fewer sprays, while greatly extending the control period of each.

University field tests using leading fungicides have proved it: Exhalt800 added to a minimum label spray formulation gives control equal to higher recommendations without Exhalt800. At higher dosages, you may double or even triple the effective control period, with proportionate savings. Results may vary, depending on the fungicide used.

Exhalt800 is low in cost, but it goes a long way. Mix one pint to each 100 gallons in the spray tank. It won't damage turf, trees and ornamentals when used as directed. And, it's easy to use — just add to spray tank and agitate. If frozen, it won't separate; may be thawed and used.

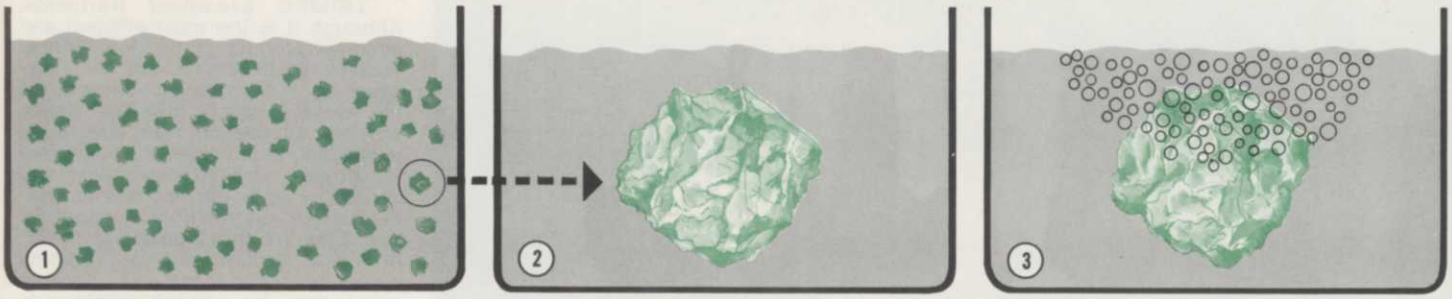
Easy clean-up. After spraying, rinse equipment with water. Residue won't clog nozzles or damage equipment.

With such an impressive number of proven benefits, at least two are paramount: (1) Insuring your fungicide investment, and (2) saving money. *Even as you read this, your spray dollars may literally be washing away!*

As an efficient business manager, can you ignore the overwhelming evidence in favor of Exhalt800? Shouldn't you at least try it and make your own judgement?

Call your authorized Gordon distributor today. It could be the most profitable call you'll make.

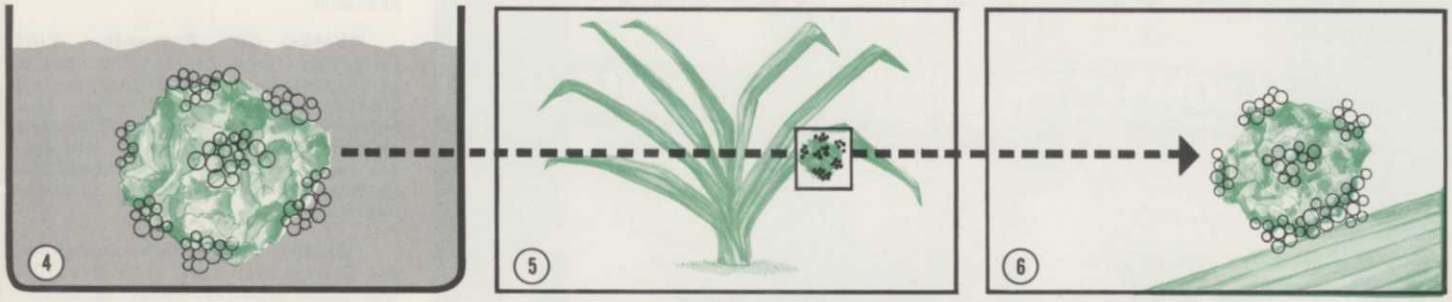
How Exhalt® 800 Extends Fungicide Protection



Microscopic particles of fungicide are suspended in water in spray tank.

One minute fungicide particle, greatly magnified. Countless millions of such particles in water become the spray solution.

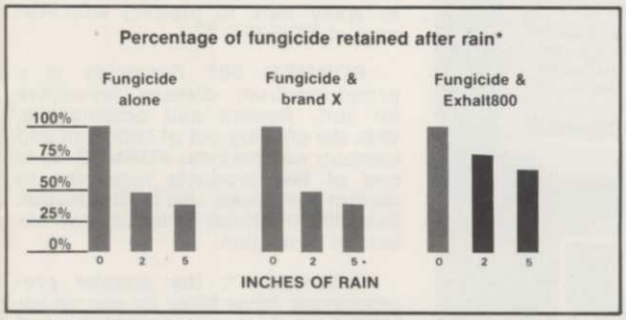
Exhalt800 liquid enters spray tank. Hydraphobic (repelled by water), it breaks into a myriad of tiny droplets and attaches to fungicide.



Tiny Exhalt800 droplets form a porous, flexible fabric that encapsulates each fungicide particle (enlarged to show detail).

Turf, when sprayed, becomes coated with millions of fungicide particles, each particle encapsulated within the porous fabric of Exhalt800 droplets.

Encapsulated fungicide particles on blade of grass (magnified portion). The Exhalt fabric around each particle is porous and flexible; it lets plant breathe, flex and grow, releases fungicide slowly.



*Results based on tests of spray coatings applied to glass panels and dried 10 minutes at approximately 70°F. Retention after erosion by rain was measured by solvent stripping the panels and determining the residual fungicide by quantitative ultraviolet spectroscopy.

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For systemic control of fungus diseases, TOPMEC 70W™ gives both preventive and curative control of diseases like Dollar Spot and Fusarium Blight.

Whichever Gordon fungicide you choose, the point is that you can *double or even triple its efficiency by adding Exhalt®800 to the spray tank,* and cut labor and material costs proportionately.

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TOPMEC 70™ Systemic Fungicide for Ornamental Turf. Gordon's 70% wettable powder, with spreader-sticker, provides both preventive and curative control of fungus diseases like dollar spot and Fusarium blight. Broad-spectrum control. Ideal for bentgrasses, bermudagrasses, bluegrasses, fescues, St. Augustine, and their mixtures. Add exhalt 800 to spray tank to prolong effectiveness of TOPMEC 70.

FORMEC 80™ Fungicide is a broad-spectrum disease preventive for turf, flowers and ornamentals. With the phasing out of cadmium and mercury compounds, FORMEC 80 is one of few products registered to control red thread. Use it with Gordon Exhalt®800 Sticker-Extender for extended protection.

BETAMEC-4™, the premier pre-emergence grass killer for use on established turf, ornamentals and ground covers. Controls crabgrass, Poa annua, grassy weeds and certain

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• Big Bear Equipment, Inc.
• Midwest Toro
• The Yard Company

NEVADA
Las Vegas
• Clark County Whol. Merc. Co.

NEW JERSEY
Boundbrook
• Loft Seed, Inc.
• Vaughan-Jacklin Corporation
Freehold • Green Hills Turf Supply, Inc.
Maplewood • Pierson's Mill Co.
Rahway • Ferti-Soil Co.
Saddle Brook • The TERRE Company
Union • Andrew Wilson, Inc.
West Caldwell • Rockland Chemical Co.
Yardville • Jep Sales, Inc.

NEW MEXICO
Albuquerque
• Albuquerque Chemical Co., Inc.

NEW YORK
Farmingdale
• Wagner Seed Co.
Hauppauge • Maxwell Turf, Inc.
Jamaica • J & L Adikes, Inc.
South Hampton
• James H. Lynch, Inc.
Syracuse (De Witt) • Agway, Inc.
W. Henrietta
• S.U. Moffett, Inc.

NORTH CAROLINA
Charlotte • E. J. Smith & Sons
• Seedsmen, Inc.
China Grove • Regal Chemical Co.
Fayetteville
• Eastern Turf Equipment
Goldsboro • Jeffreys Seed Co.
Winston-Salem • Goltra, Inc.

OHIO
Canton • Letherman Seed Co.
Cincinnati
• Century Toro Dist. Inc.
• Thorton Wilson
Cleveland
• Sidney L. Dryfoos Co.
• U. S. Garden Sales, Inc.
Columbus
• Century Toro Dist. Inc.
• W. R. Grace & Co.
Dayton
• Century Toro Dist. Inc.
Elyria
• Lakeshore Equipment & Supply Co.
Finlay • Desco Chemical Division
Marietta • Altco, Inc.
Toledo • Century Toro Dist. Inc.

OKLAHOMA
McAlester • Tony's Chemical House
Oklahoma City • Estes Chemicals, Inc.
Tulsa • All Best, Inc.
• Thompson-Hayward Chemical Co.
• Wait Sales Company

OREGON
Portland
• The Chas. H. Lilly Co.
• Van Waters & Rogers
• Wilbur Ellis Co.

PENNSYLVANIA
Doylestown
• Philadelphia Toro
Hanover
• Miller Chemical & Fertilizer Corp.
Horsham • Pocono Supply Co.
Malvern
• Fisher & Sons, Inc.
Philadelphia
• Farm and Golf Course Supply Co., Inc.
Phoenixville
• Lawn & Golf Supply
Pittsburg • E. H. Griffith, Inc.
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RHODE ISLAND
East Providence • Old Fox Chemical, Inc.

SOUTH CAROLINA
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Myrtle Beach • Bingham Seed Co.

SOUTH DAKOTA
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TENNESSEE
Knoxville • Regal Chemical Co.
McMinneville • Forrest Nursery
Memphis
• Oldham Chemicals Company, Inc.
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Nashville • Tieco Tennessee
• Central South Turf Dist.

TEXAS
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• Amarillo Seed House
• Taylor-Evans Agri Supply
Dallas
• Chemical & Turf Specialty Co.
• Van Waters & Rogers
El Paso
• El Paso Turf Supply
Houston
• Swift Agriculture Chemicals Corp.
Lubbock
• Williamson Seed Co., Inc.
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• Aggie Chemical Industries
Waco • Estes Chemicals, Inc.
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Orem • Wasatch Chemical Div.
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Sun Prairie
• Turf Management Supply

FIGHTING DOLLAR SPOT

Studies indicate combination treatments most effective

Tolerant strains of turfgrass should be of less concern next season. That's the encouraging outlook on a number of golf courses in the northeast where a special test effort was underway in 1976 to measure new ideas in handling turf disease challenges in both normal and difficult weather. Treatments with combination products proved effective in halting tough disease.

The tests were established by Pat Nelsen, a Du Pont field development specialist, who concentrated on a program to handle tolerant strains of dollar spot (Scelerotinia). Pat Nelsen established a series of turf trials on fairways and greens of eight golf courses in Pennsylvania, New Jersey and Delaware. Her objective was to measure disease control under "normal" field conditions.

Tolerant strains of disease have aroused increased attention during the past several seasons, but the Nelsen trials indicate that timely protective treatments with the right products will deliver good control. Where tolerant strains exist, contact fungicides (i.e. Daconil, "Tersan" 75) used in combination with "Tersan" 1991 will control disease.

At first, when the weather was good, Pat Nelsen had trouble finding the tolerant strains of disease in

the field. Later, under more difficult weather, she demonstrated that there were simple, practical ways to deal with tolerance even in areas where turf plots had been inoculated with these disease strains.

Pat Nelsen undertook the 1976 turf trials as a field assignment with Du Pont. A native of North Dakota and a biology graduate from Concordia College, she received her master's degree in entomology and applied ecology from the University of Delaware in 1976.

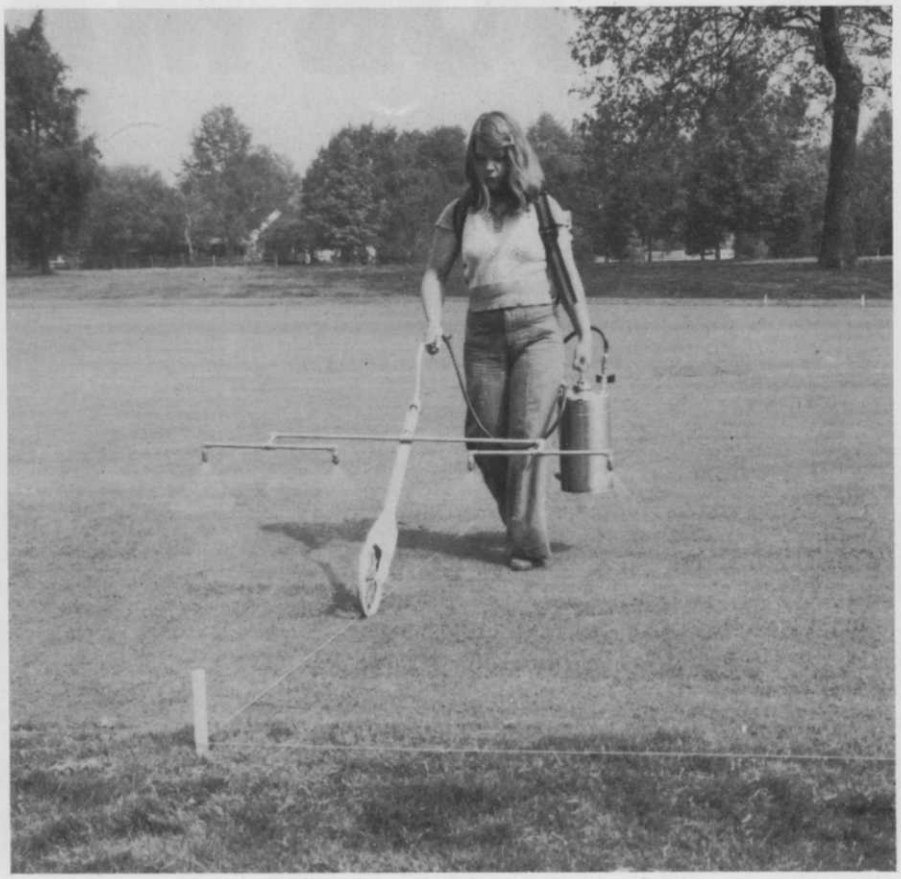
In her Northeast turf disease control trials this past season, Nelsen treated plots on a regular 10-14 day schedule that matched disease control programs of many area golf courses. Half a dozen different spray treatments were included in a typical series of fairway and greens trials such as those she ran at Tavistock Country Club in Haddonfield, NJ.

Chemicals for each treatment were carefully pre-measured and packaged in plastic bags for mixing in the two-gallon hand-carried spray tank. A 4-nozzle, wheel-mounted boom delivered a precise 6-foot swath of chemicals, with pressure coming from a back-pack cylinder of carbon dioxide.

In past years dollar spot disease had been experienced regularly at the courses involved in the Nelsen tests. Disease pressure, of course, has always been variable, depending on the weather. But several weeks passed this season, before Tavistock Agronomist Rich Hurley was troubled by disease problems — even in untreated check areas.

When a tiny patch of Sclerotinia finally appeared on a green, Nelsen pulled a plug for a laboratory test. Promptly she had confirmed that the disease was tolerant to standard treatments of "Tersan" 1991 alone. Sprays of "Tersan" 1991 in combination with "Tersan" 75 or Daconil 2787 offered protection against the tolerant strains of dollar spot.

Altogether, Nelsen's field studies confirmed the fact that precision full-rate applications of turf fungicides are basic to good disease control. To prevent pressure from tolerant strains of disease a superintendent should plan on combination treatments. □



Fairway trial of fungicide combination is applied by development specialist Pat Nelson, using a 2-gal. tank, a 4-nozzle 54-inch boom mounted on a wheel.

Equipment adjustment was handled in the field by Pat Nelson, who used a 5-pound CO_2 tank to provide pressure for even application.

JOB MATCHED POWER

Ford rear blades for grading, leveling, ditching, backfilling, snow clearing, other jobs. Eleven models, 6 to 10-foot widths. Swing offset feature, standard on selected models, lets operator offset the blade right or left quickly and easily.

Ford backhoes. Great for ditching, excavating, trenching. Choose from 10-foot, 13-foot, 15-foot, heavy-duty 15-foot and 17-foot Ford backhoes, and 8-foot Arps backhoe for Ford CL-30, CL-40 compact loaders. Ford digging power helps shorten the job.

Ford 3-point hitch and hydraulics with twin lever controls. It's the Ford design for fast, precise landscaping. Response is smooth and accurate with fine increments of adjustment. Permits three types of response: 1) Blend of draft and position control. 2) Draft control. 3) Position control. Available on selected models.

Ford LCG (low center-of-gravity) tractors. Ideal mowing and towing power. LCG design hugs the slopes, while optional dual rear or low-pressure, wide-base tires pamper turf. Shown with Ford flail mower. (Photographed at Pebble Beach, CA.)

Ford tractors and equipment are available in a wide variety of combinations to match your job needs. Ford tractor power includes Ford industrial tractors, Ford all-purpose tractors, Ford LCG (low center-of-gravity) tractors and Ford lawn and garden tractors. Most are available with options to match your special requirements. Here are a few of the many landscaping and grounds maintenance jobs that Ford tractors and equipment can do for you.

See your Ford tractor dealer today. He's listed in the Yellow Pages under "Tractor Dealers" and/or "Lawn Mowers".

Circle 118 on free information card

FORD TRACTORS

Ford rotary cutters. Level medium to coarse growths in a fast, once-over operation. 60-inch, 72-inch, 84-inch, 100-inch and new 120-inch and 144-inch Ford rotary cutters. Gauge wheels standard. Options include straight, suction or hook blades, skid shoes, chain guards, etc.

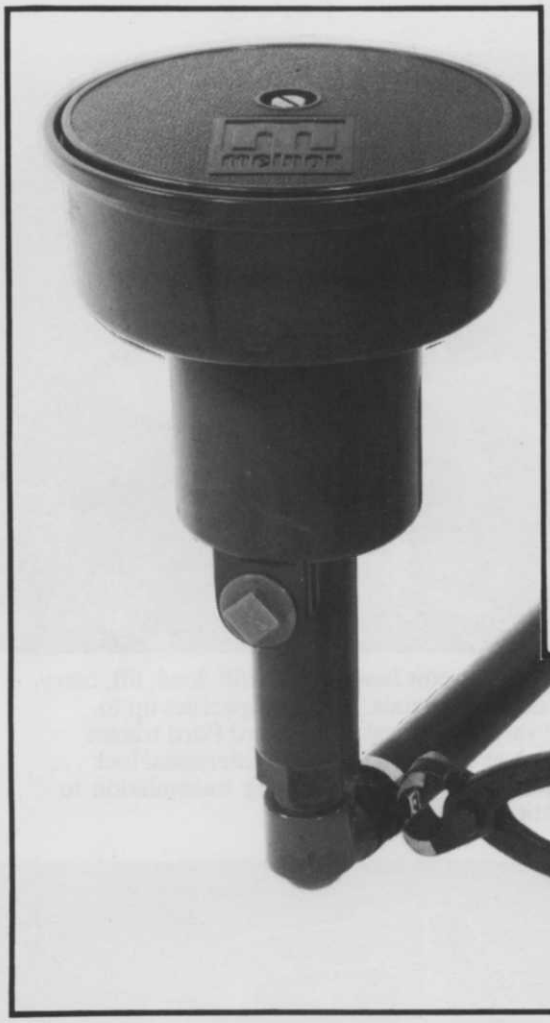
Ford industrial tractor loaders. Backfill, load, lift, carry, spread or dump materials. Bucket capacities up to 1½-cubic yards. Optional or standard Ford tractor features such as power steering . . . differential lock . . . foot accelerator . . . power-reversing transmission to ease operations.

Factory-installed integral cabs are available for all Ford all-purpose tractors from 32 horsepower up! Provide operating comfort year 'round. Heater, defroster and blower. Air-conditioner optional on most models. Cabs meet OSHA noise limitation requirements for eight hours.

Ford skid-steer loaders. Where traction and small-space maneuverability are required. Here's 4-wheel drive traction, smooth acceleration, instant forward-reverse response and easy spin-turns. Three models: 40-hp Ford CL-40; 30-hp Ford CL-30; and 25-hp CL-20 mini-compact.

OETIKER® STAINLESS STEEL CLAMPS

COMPARE OUR PRICES & QUALITY!



OETIKER 1-EAR CLAMPS in 304 stainless steel have already been installed on many irrigation systems.

They are economical and are easy to install in the field with a pair of pliers.

Of the sizes listed, the most popular in the underground sprinkler systems industry are:
Part Numbers: 198SS, 210SS, 226SS, 256SS, 271SS, 331SS, 410SS and 620SS.

Our standard pincers, part number 1098, are the most widely used in the field; however, our side jaw pincers, part number 1099, are used where hose is in confined area.

Send for free samples and literature.

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Germany: **Hans Oetiker Metallwaren- und Apparatefabrik GmbH - 7833 Endingen a.K.** - Usenbergerstrasse 13 - Deutschland - Tel. (07642) 7044 - Telex 77 22 889
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OETIKER Products sold in most other countries through licensees or distributors — U.S., CANADIAN and foreign patents.

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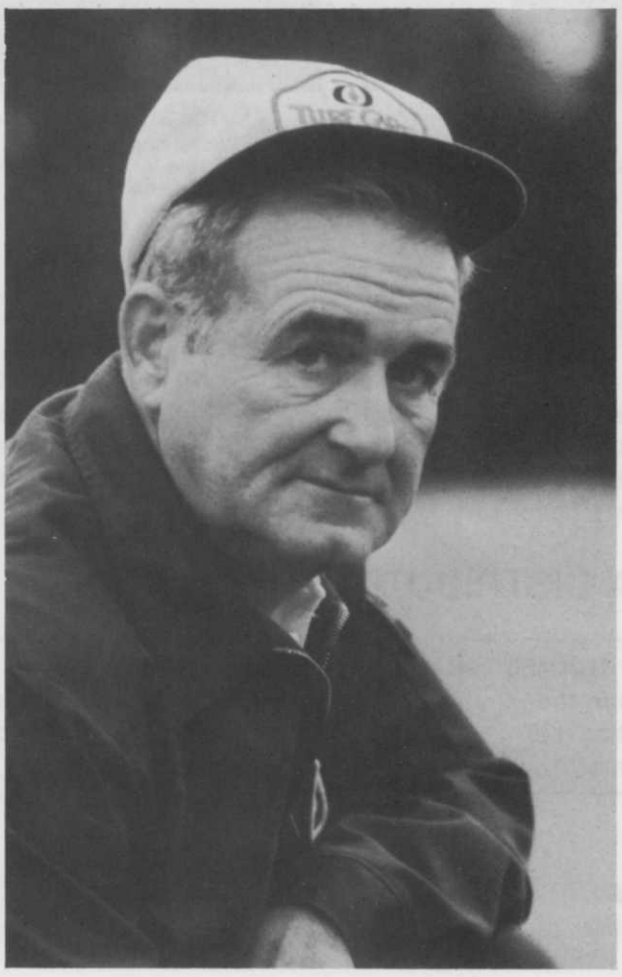
BEATING MOLE CRICKET

. . . One man's success story



One of the first problems encountered by Les Getchell when he took over as superintendent of the golf courses on Jekyll Island, Ga., was getting rid of a severe mole-cricket infestation.

Damage was extensive on the fairways of the three courses operated by the Jekyll Island Authority.

Getchell, a golfer and former Navy man who specialized in computer maintenance, felt qualified to take on the challenge. He was among the first to graduate from a special program at Lake City, Florida, Community College. It is the only school in the South that offers an Associate Science Degree in Golf Course Operations.

"The mole-cricket infestation was not only unsightly," Getchell says, "but it affected the business here. There was no question about repairing the damage on the greens immediately, because I think the majority of players feel that if you've got good greens any damage on the fairways can more or less be overlooked.

"But," Getchell adds, "I also felt some control measures had to be taken on the fairways to bring the insect population down to a tolerable level."

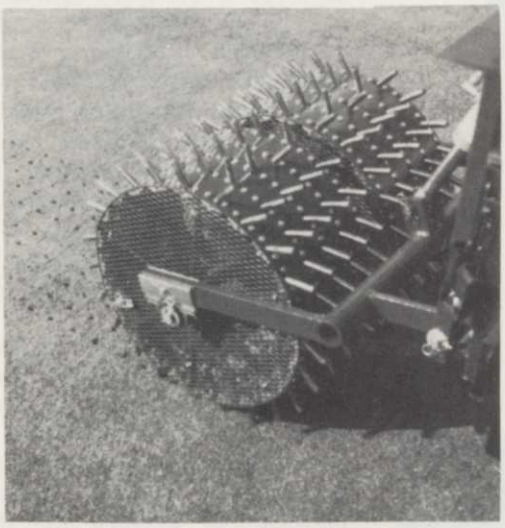
Getchell relates that his first step was to set up some experiments to determine what chemicals would do the best job. He worked closely with Dr. Bob Barry, who was then the head of the University of Georgia

Continued on page 31

"The mole-cricket infestation was not only unsightly, but it affected the business here."

You can have a neat, clean aerating pattern on close to 2" centers

The Dedoes pivoting tines enter straight in the turf and come out straight, leaving your green in a playable condition. ONE MAN CAN AERATE A 5000 SQUARE FOOT GREEN IN LESS THAN 15 MINUTES, with the plugs collected inside the drum! Saves costly clean-up.



TCA-550 Two Drum
This model available with 240 tines on close to 2" centers — gives you a 25" swath, or with the usual 60 tines per drum.

The hydraulic principle utilizes the weight of the vehicle for down-pressure giving you needed hole depth.

Designed and ruggedly built to cut maintenance costs.

TCA-501 Three-Drum Supreme
With 180 tines this model gives you a 42" swath and is available in three tine sizes to satisfy your individual requirements.

Dedoes the Aerating Pro

Quickly mounts to any all-purpose vehicle you may already have. Three sized tines to choose from 3/4" tine gives you 3" penetration, and 3/8" and 1/2" tines are also available. BACKWARDS OR FORWARDS you have complete mobility—no special attachments necessary.

WE HAVE A DISTRIBUTOR IN YOUR AREA.

Our economy model TCA-450 costs 20% less than the regular models — has 120 tines on 2 drums.

Fairway Models also available with the same advantages — and they can pick up the plugs.

Manufactured by
Dedoes Industries, Inc.
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mole crickets

Continued from page 29

experiment station at Tifton. Getchell and Barry used a driving range marked off in grids; each grid would have a flag to identify the particular chemical being used.

The experiments showed that the most effective and economical job was done by Diazinon AG500. Getchell than applied the material in spring soon after the mole crickets hatched.

"We used it at four ounces to a thousand square feet, and we had a tremendous kill — just fabulous."

Now he gets the best results when he treats within a week after seeing the first mole crickets in spring, he says. If he waits until the adult stage, they are a problem to control.

"Oh, I've had some fantastic kills of the adults by using baits on the fairways," Getchell explains. "We'd presoak the ground on warm nights and put out the baits. But I'm not really sure what the original population was in those areas. Did we control those in the ground or not?"

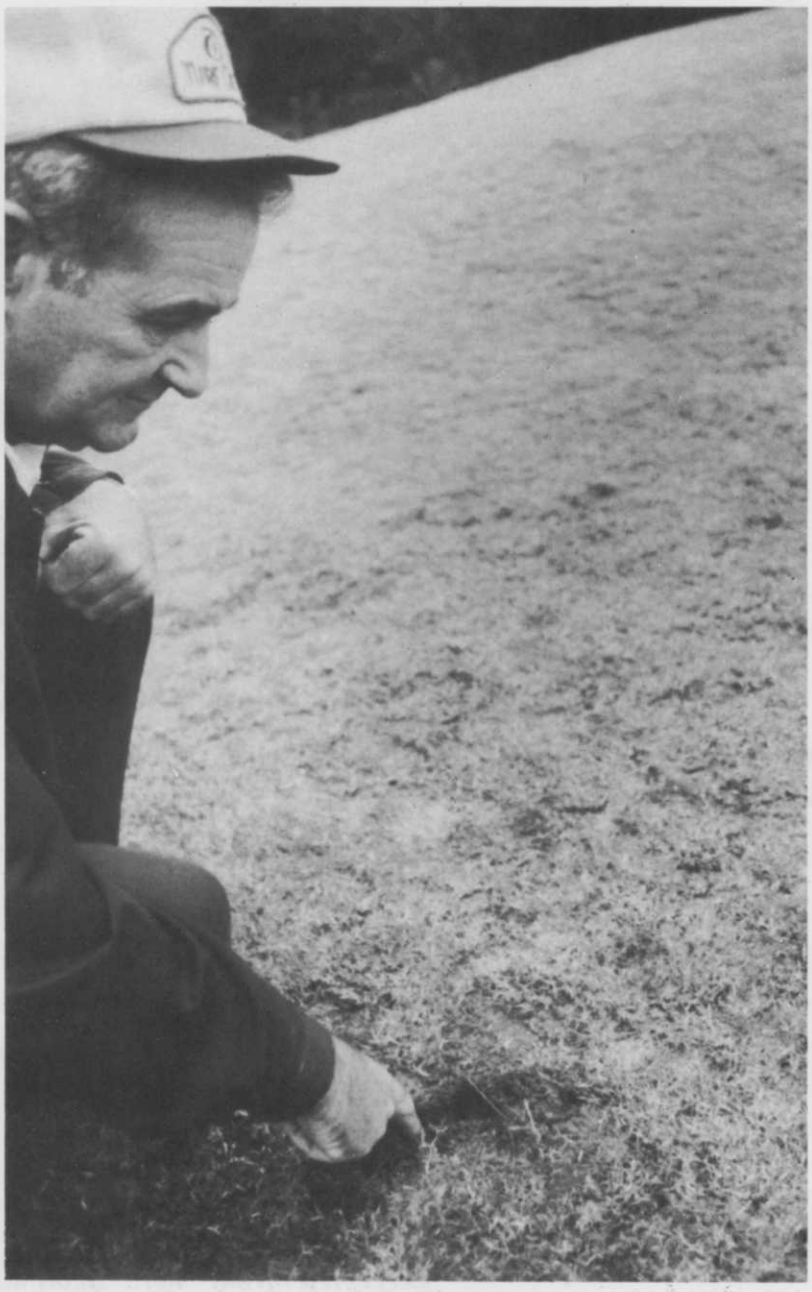
Another drawback, he says, is the high cost — about 40-45 cents per pound. Recommended rates are 80-100 pounds per acre. In addition, weather is a factor. If it rains hard overnight, the bait disintegrates.

"I'm convinced that I've got them down to tolerable limits on the fairways where I have used Diazinon on immature mole crickets," Getchell says. "Business is back up, too."

The Navy veteran says his approach to golf course maintenance problems is cautious. That's his style, and he's aware that he lacks practical experience in the field.

"I do a lot of phone calling," he says. "I talk to a lot of people, and I don't hesitate to ask for advice."

The result has been an overhaul of the irrigation systems at the Jekyll Island courses. He has initiated use of herbicides and better results with insecticides. Application equipment has been calibrated accurately. Administration of maintenance has been improved. □



Experiments by Les Getchell convinced him mole cricket damage could be reduced to tolerable levels by spraying insecticide instead of using baits.

THE HORTICULTURAL CONSULTANT IN COURT

by Norman J. Scott
president, Canadian Horticultural Consulting Co. Ltd., Stratford, Ontario, Canada

The following information is excerpted from Mr. Scott's presentation before the American Society of Consulting Arborists in St. Petersburg, recently. It offers some down-to-earth advice on how the consultant can protect his interests when called to testify in court.

The subject which has been assigned to me is really of too great a magnitude to be discussed in the time allotted. However, we will try to acquaint you with some of our experiences and methods under which we have operated in the horticultural consulting business in Canada (and some in the United States, the Orient, and Europe) since 1959.

At that time we entered into this brand new profession — more by accident, than by design. Permit me to explain — after we sold one of the largest and most successful nursery operations in Canada in 1959, (at the age of 47) we were faced with the problem of inactivity.

While we owned and operated the nursery, we used to be approached and sometimes subpoenaed by lawyers who had knowledge of our experience and qualifications in the field of horticulture — and who needed advice and expert testimony on behalf of their clients. So — with this in mind — and with the encouragement from a number of people for whom we had con-

Continued on page 34

How to avoid paying for more than you need. Or getting less than you want.

A tractor that's too big for the job is an unnecessary waste of capital.

While one that's too small ends up wasting time and costing money.

The secret is selection. And that's why John Deere provides a range of tractors and options that lets you match the equipment to the task.

The John Deere 2040 Tractor is powered by a 40-hp diesel engine with an 8-speed constant mesh transmission and the hydraulic power to handle most any attachment.

Designed for golf-course maintenance and other similar large-acreage mowing jobs, the 2040 is probably more than you need for most residential lawn work.

So we offer the 10-hp 210 Tractor. Plus 12-, 14-, 16-, and 19.9-hp models to give you a choice and the exact power size you need.

Which means there's a John Deere Tractor just right for the job you have to do.

You also get fast parts availability, flexible financing, and the value of reliable quality that's been a tradition at John Deere for more than a century.

All reasons why "Nothing Runs Like a Deere."

In any size you need.

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consultant

Continued from page 32

sulted — we struck out into this new profession on a full time basis.

What I have to say today here could apply to you — even if you are confining your efforts strictly to trees. Let me emphasize very strongly that we do not go out of the realm of horticulture. Nor do we venture into such fields as forestry. If we do not know — we say so. I learned this principle at Ohio State University under Dr. Chadwick many years ago. It has stood me in good stead. I think one of your former Presidents of the U.S.A. — Mr. Truman made a statement that could very well apply to our profession. He is reported to have said that "It is what you learn after you know it all — that really counts".

"I am the first to admit that my knowledge is limited, but I know where to find the people who have the required answers."

You say to me how can you have knowledge of all subjects that you refer to in horticulture. WE DON'T — but, we do know the people who have the required knowledge. I am the first to admit that my knowledge is limited, but I do know where to find the people who have the required specific answers; — and who are willing to put their findings or opinions into writing — and most important (if required) testify accordingly.

How do we operate? Very simply — with little or no fan fare. We have never had to advertise. One client has told another. We are listed in the yellow pages of the telephone directory — and continue to be listed in Toronto — although we moved to Stratford (100 miles west of Toronto) two years ago.

We do not maintain or keep up a separate office. We do business from our residence. When we first started in Toronto in 1959 we thought we had to have a separate downtown office and a full time secretary. We have been able to do all our work from home with a part time typist — but always have someone at our place of business to answer the telephone because most of our contacts are by telephone. We learned a long time ago that it wasn't how much cash you took in — but — what you did with that cash that gave the final desirable financial result.

The past 18 years in the consulting business have been good to us. It is no side line or part time business with us. Let it be known that yours is a full time business — and your profession will be recognized much better in your community.

Do not humble yourself to lawyers — or others who would put words into your mouth. When this happens to us we simply ask the lawyer who is going to write the report, and who is going to testify? We make it very clear that if he wishes to engage us that it will be our report based on our findings and our evaluation of the situation.

We have had a few lawyers tell us that our fee was too steep. We simply tell them that if they knew what we or our team knows — they would not be needing us. It clears the air once and for all — and the few who might cause you any problem soon realize that your experience — your education — your ability is to be recognized on a professional basis.

We charge $300 per working day or part thereof. We have paid some of our team as high as $500 per day on a big problem. We give no estimate or quote for a job — except per diem — but do include an upset figure where required.

Our working day includes travelling time from portal to portal. Mileage (presently 25¢ per mile) is extra — as is any out of pocket expense such as lodging, meals, etc. This business will never lend itself to mass production. You can make a good living — but you will never get rich. There is considerable lost time which you must allow for.

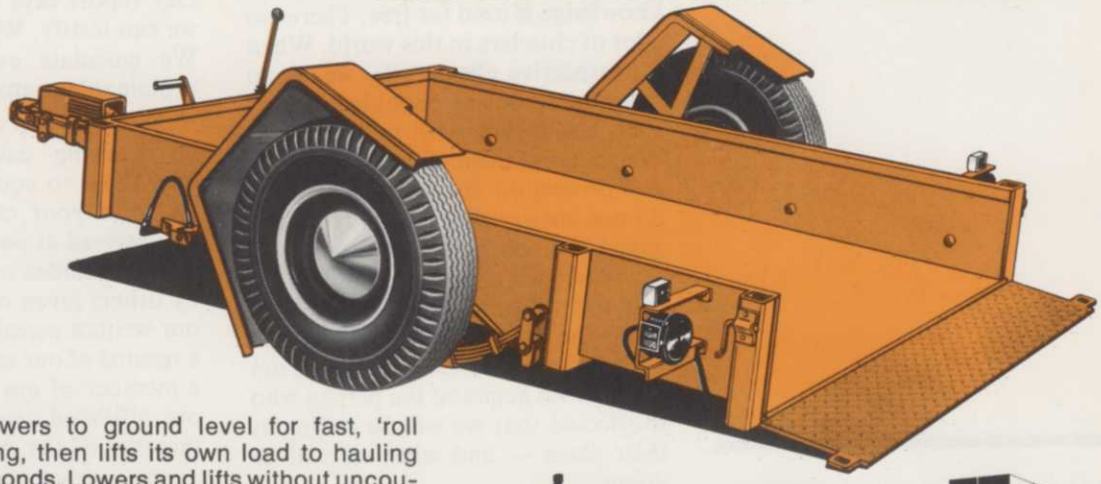
It is generally a one man operation, using all part time assistance as required. Your most valuable asset is your reputation. You cannot deviate from the straight and narrow. Never try to create value. On the other hand a tree or shrub is always worth something — even a nominal value of $1.00 to the owner. Always recognize that everything is worth something to the owner. So long as you recognize some value then it becomes a matter of judgement as to how much.

We do not discuss a new problem with an adjuster or lawyer by

Contined on page 36

HITCH UP

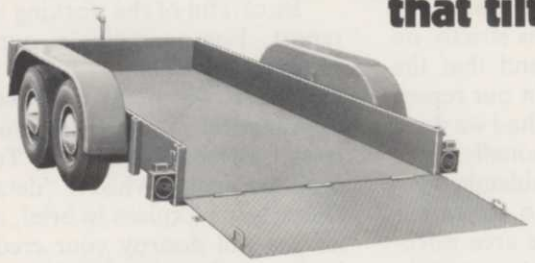
TRAILEVATOR the hydraulic elevating trailer that lifts its own load in seconds



Trailevator lowers to ground level for fast, 'roll aboard' loading, then lifts its own load to hauling position in seconds. Lowers and lifts without uncoupling from towing vehicle. Saves time, saves money. Four models, two capacities: 3000 lbs. and 2000 lbs. Bed sizes up to 5'-10" x 10'.

△ Write in #152 △

TILTSTER the low bed trailer that tilts



Drop axle tilt type trailer handles loads up to 5000 lbs. Easy one-man operation. Tailgate serves as self-adjusting access ramp, provides smooth, gradual incline for fast ground level loading. Bed returns to hauling position when loaded; size: 5'-10" x 12'.

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NORTHLAND utility trailers

Strong, durable, all-purpose utility trailer with unitized steel bed construction. Body tilts to ground level for fast, easy loading. Steel side racks and end gate with positive locking latch available. Three models; capacities to 2000 lbs.; bed sizes to 6' x 8'.

△ Write in #154 △

Single Axle Tiltster

Capacities to 3000 lbs.

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Low Profile Utility Trailer

Capacities to 1500 lbs.

△ Write in #156 △

Northland R.V. Trailers

Snowmobiles, Cycles, etc.

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Northland Boat Trailers

Capacities to 4000 lbs. 12 to 21 ft. boats.

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consultant

Continued from page 34

telephone until we get a letter stating that we are employed — otherwise you are milked and your knowledge is used for free. There are a lot of chiselers in this world. When a prospective client calls, we try to be as courteous as possible but very soon ask if they wish to engage us. We acquaint them with the nature of our profession and our fee. If they do not answer that we are to be engaged the conversation stops.

When we get an assignment — (say from a government agency) we go to the assigned property. Before we get there we have someone from that agency acquaint the person who is affected that we will be calling at their place — and what we will be doing.

When we arrive we first make ourselves acquainted with the affected person. We present our business card and any letter that we may have from the authorizing body to assure the affected who we are and what we do. We also take time to assure the affected that our work is strictly on an unbiased basis — and that the results as documented in our report will be exactly the same had we done the work for them personally. This procedure has paid dividends. Another important point to remember is the boundaries of the area affected. We do not attempt to ascertain this from plans or blueprints — but have someone from the person or firm who is engaging us point out to us the definite boundaries. In this way we overcome a possible problem of wrong identification of area in court.

Our report incorporates the statement that we examined the plants on the area as pointed out to us by so and so. This means that if any controversy arises re the area boundaries, he or they must answer, not us. We give no advance information or guess about our report, either to our client or the affected party. Our written report contains all and only that with which we wish to be credited.

Our reports are of good and professional appearance and sufficiently presentable under any circumstances. Facts are closely checked. Reports are always submitted in triplicate to the client with an extra copy for our files. Keep your copy on file. We have been called to court on work which we had completed 4 and 5 years ago. Our report says only that to which we can testify. We make no guesses. We calculate everything in some explainable manner.

Always keep your field notes and all working calculations. Always take these to court or to any meeting with your client to show how you arrived at your conclusion. Our report includes our terms of no use by others (even our clients) without our written permission. It also gives a resumé of our scholastic (or that of a member of our team) standing — our affiliated associations such as a member of the A.S.C.A. etc.

We tell what courts or tribunals in front of which we have appeared. We give a partial list of our clients whom we have or are serving. This documentation is very helpful and serves to substantiate our standing in our profession.

Be careful of the working in your report. For example in our early experience we said words to the effect that we made a "detailed" examination of such a group of trees. A leading lawyer in Toronto took me apart. What is "detailed"? Describe it! Explain in brief, a good lawyer will destroy your credibility in short order — and really as a consultant; — credibility is your most important asset. You must at all times be completely and totally unbiased.

In court; — answer only what is asked. Do not volunteer information. Answer simply but factually. Do not be swayed. If you know you are right say so — but stick with it. Dress simply and properly. The court still desires respect.

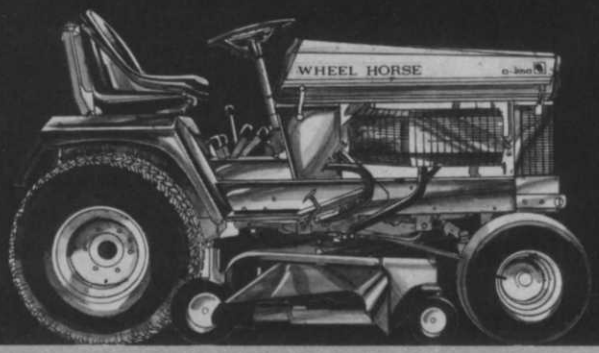
Don't get off on a tangent — nor permit the opposing lawyer to put you into that position. I sit with many of the lawyers in court cases for the cross-examination of the other horticultural witness or expert. Lawyers do not know or pretend to know our business. He doesn't know when he is getting a snow job when it comes to the

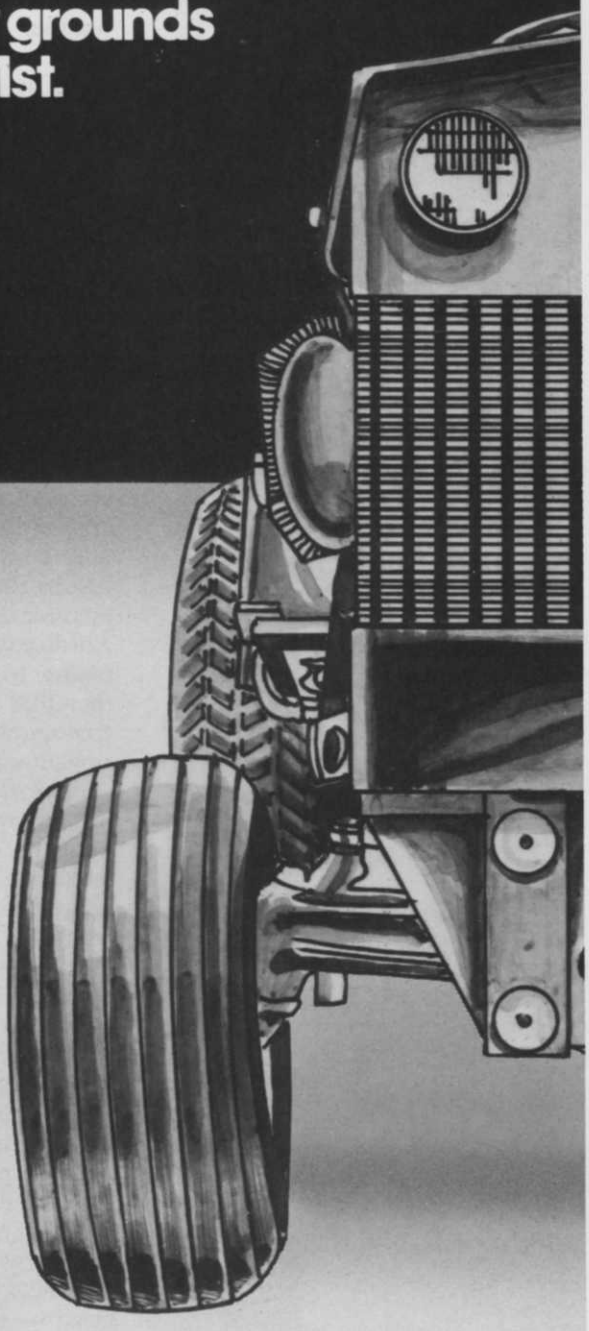
Continued on page 38

"Always keep your field notes and all working calculations. Always take these to court or to any meeting with your client."

We'll give you a free 60" mower

valued at over $500 if you put this Wheel Horse® D-250 to work on your grounds by May 31st.





And that's a promise!

Just go to your nearest Wheel Horse dealer and make a deal with him on a D-250. The 19.9 HP king of garden tractors. Once you do, he'll give you at no additional charge the powerful three-blade, 60" mid-mount mower, valued at over $500.

What's so special about the D-250?

Wheel Horse is the first to put automotive engineering to work on today's lawn and garden problems. Its 4-cylinder liquid cooled engine makes the D-250 dramatically strong. Yet amazingly quiet. Add to this its compactness and maneuverability and you've got the professional lawnskeeper's professional tractor.

See a Wheel Horse dealer today. Or write us and we'll send you our 1977 catalog and give you the name of your nearest Wheel Horse dealer. Hurry. The free mower offer ends May 31st, 1977.

Valid only at participating dealers.

Please send me a copy of your 1977 Catalog and tell me more about your special free mower offer. Also, I'd like to know the name and address of a Wheel Horse dealer near me.

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CITY_____ STATE_____ ZIP_____

WTT-4

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lawn & garden tractors
515 West Ireland Road, South Bend, Indiana 46614

Check yellow pages **under lawnmowers for the dealer nearest you.**

consultant

Continued from page 36

technical side of our business. That is why he hires you.

Do not be lured out of your realm of knowledge and training. For example we are well known by many lawyers in Ontario — and some know our background. They know that at one time we owned a number of different kinds of properties — so they ask us — "how much is that land or house worth where the damaged trees are located". We answer that we do not know — and stick with that answer. Why? because although we have a real good idea of the property value, we are not real estate appraisers. If we volunteered an answer — he would immediately ask for our real estate credentials. We have none — and so he discredits us. Say only what you know in the realm of horticulture or arboriculture.

"I've left court and not given my testimony on two occassions because the other consultant damaged himself beforehand."

Another word of caution. If you are a nurseryman selling plants and appear as a witness consultant you may be and generally are disqualified by the court because you have a possible conflict of interest. In other words you could sell your client new plants from your nursery — and therefore you may be accused of creating value for your client in your consultant report.

Before going to court or to a meeting with or for a client, do your homework. Review your figures — make sure. Just last November I saw an expert get an awfully red face in court. He had miscalculated. He had the decimal point in the wrong place. This shot holes in his whole testimony.

We served as a horticultural consultant for some 12 years for a large chain (350 stores — later 1000 stores across Canada) in advising them on matters pertaining to their horticultural dept. When we went to a meeting with the principals of this huge organization, we had to have our facts. They do not pay you to guess — find out — and document your findings for your meetings as these may be put into profitable action where required.

Likewise, always meet with the lawyer for your client and review some part of the case prior to going to court. Discuss all angles. I've left court and not given my testimony on two occasions because the other consultant damaged himself beforehand and my testimony would have helped the other side — so on agreement from our lawyer, I just did not give any evidence.

You should recognize these situations and advise your lawyer accordingly. He will make the decision — but you know when the other fellow goes off the deep end — let him drown quietly. I like the court aspect. If you do not like or will not appear in court, be sure to say so — because a report without backing it up by being ready to have it thoroughly scrutinized is in my opinion more or less useless.

Take your own pictures of subject under discussion (trees, etc.) to illustrate your report. This is important. Be very observant and take lots of notes on the job. For example we were doing an assignment in Preston, Ontario, and in my examination of the trees I noticed up in an old cavity a railway spike. I noted this in my field notes and the exact tree. Sure enough, it had been "planted" — and during the court case I was asked if I saw anything unusual in any of the trees. I knew immediately that he was trying to ascertain how observant I was — or did I just make "a windshield examination". I was able to answer re the spike and it took the wind out of the opposing lawyers sails.

There is so much to this business that has not been encountered. Only by exchanging ideas and experiences will we progress. Two things I would like to see take place: (1) Introduce horticulture consulting into our university courses as part of horticulture and (2) Change our present name from American to that of "International Society of Consulting Arborists" — because it is International and will become more so as time progresses.

In conclusion, as a tribute to the free enterprise system in our two great countries; — tell me; — in what other countries in the world (except Canada and U.S.A.) could you succeed at something that at one time was considered so far out as "Horticulture Consulting"? □

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See your Stauffer supplier for SEVIN 4 Flowable. Always follow label directions carefully. Ask him also for these other dependable Stauffer products: Aspon® insecticide for chinch bugs in turf, Betasan® herbicide for golf turf, lawns, Eptam® herbicide for ornamentals, sand traps, Vapam® soil fumigant to clean up planting sites. Stauffer Chemical Company, Agricultural Chemical Division, Westport, Connecticut 06880.

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Circle 131 on free information card

Chlorine may reduce emitter clogging

With water shortages facing many homeowners, urban gardeners may want to shift to drip or subsurface irrigation to save water.

Those who do shift will find that chlorine in city water is not only harmless, it may be a boon to the gardener using such systems, a U.S. Department of Agriculture (USDA) researcher finds.

Kenneth R. Davis of USDA's Agricultural Research Service, Riverside, Calif., reported these findings at the International Plastics in Agriculture Congress in San Diego April 11-16 at the Town and Country Hotel.

Drip irrigation meters small amounts of water to individual plants by emitters — tiny "nozzles" — daily instead of large amounts weekly. Subsurface systems are lines buried to meter water to the root zones of crops.

Clogging of lines and emitters by bacterial growth is often a problem with drip and subsurface irrigation systems. Chlorine is a promising method for controlling such emitter clogging, Davis said. At least one manufacturer recommends chlorine treatment to restore flow rates diminished by biological reactions.

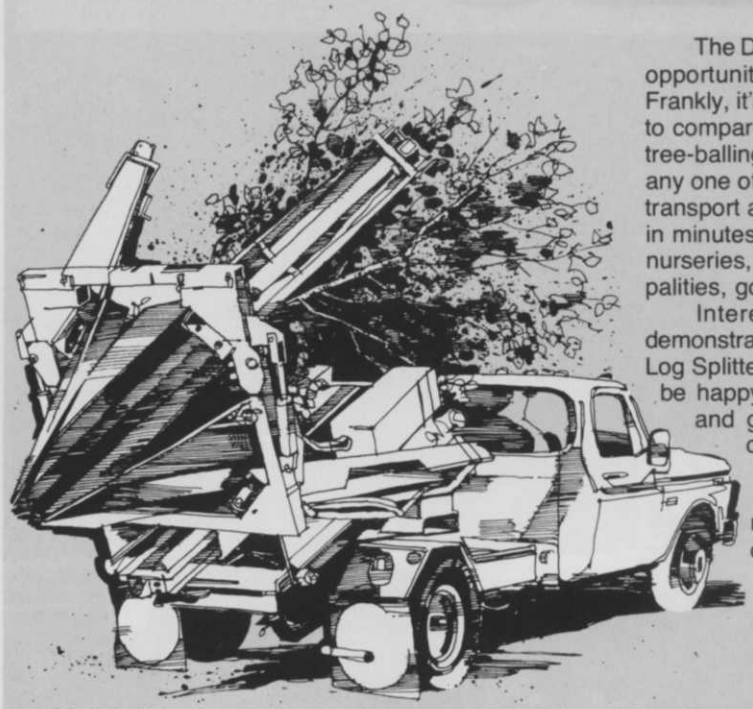
Agricultural producers — irrigators — have the means of adding chlorine to irrigation systems if they desire. Gardeners and lawn enthusiasts using drip or subsurface lines may, however, find it impractical to own equipment to add the chemical to their water.

But, a recent study by Davis indicates that irrigators using city water may not have to be concerned about adding chlorine, since most city water contains about .2 or more parts per million chlorine, an effective rate to hold down most bacterial growth.

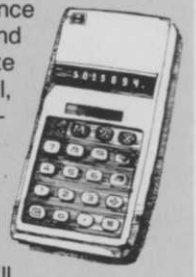
Thousands of acres are drip irrigated commercially in Arizona, California, Hawaii, Texas, and several other states. Australia, Israel, New Zealand, South Africa, and several other countries also have extensive drip irrigated acreages, all totaling about 270,000 acres. Projections are that by 1980 nearly 850,000 acres of the world's crops are expected to be under drip irrigation.

The Plastics Congress attracted about 2,000 persons from around the world to attend. Theme for the international gathering was "Food for World Survival." □

We demonstrate. You calculate.



The Diggin' Dutchman is giving away **free calculators*** . . . just for the opportunity to demonstrate his labor-saving Vermeer Tree Spades. Frankly, it's a good deal for both of us. It gives you a chance to compare Vermeer with older, costlier transplanting and tree-balling methods . . . and it lets Vermeer demonstrate any one of seven all-hydraulic Tree Spades that dig, ball, transport and transplant any tree up to 6" in diameter — in minutes. It's a proven, patented labor-saver, used by nurseries, landscapers, tree farms, developers, municipalities, golf courses and parks everywhere.



Interested? Ask your Vermeer dealer for a demonstration on Vermeer Tree Spades, Stump Cutters, Log Splitters, Trenchers or any Vermeer equipment. He'll be happy to show you the machine best-suited for your operation . . . and give you a **free calculator** to help you formulate your own answers.

Find out why Vermeer Tree Spades transplant more trees and bushes than all other machines combined. **Write —**

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*Offer limited to one free calculator per customer upon completion of demonstration on customer property or job site. Offer expires at discretion of Vermeer Manufacturing Company.

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Attachment is simple. Just put the two interlocking weight bins on your 3- or 4-wheel Turf Truckster chassis (equipped with hydraulic system), slide in three quick-release pull pins, add sand for weight, and you're ready to go.

You drive between work areas quickly, saving time. When you reach a green, just use the hydraulic lever at your side to lower the Greensaver into the turf. You keep moving, aerating at speeds up to 6 mph.

The inexpensive and easily-changed tines leave a neat 3-1/4" x 4" pattern of holes. The unique tine shape eliminates any pivoting action, allowing them to go deeper without damage to the green surface. So you can remove up to three times more soil than with other drum-type aerators.

But the Greensaver also makes the aerating operation faster by automatically picking up the soil cores. As the tines enter the ground, the cores are forced through the tines into the drum. When it's full, just open the large door to empty it. Or you can leave the sides of the drum open, to deposit the cores on the green.

And the Greensaver features a special turf guard and roller which smooth the turf and prevent the sod from rolling up on the drum.

The new Greensaver is just one more way to put your 18-hp Turf Truckster to work. With other accessories, your Cushman can spray, spike, dump, and top-dress. Use it. It's more than basic transportation. It's a total turf-care system.

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EQUIPMENT

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Snowpack little help to Western drought

Latest surveys of mountain snowpack offer little encouragement to western states facing the worst summer water shortage in years, according to the U.S. Department of Agriculture's Soil Conservation Service (SCS).

Snow surveys conducted earlier this month by SCS show the lightest snowpack ever recorded on most watersheds in the West. Spring and summer streamflow from the snowbelt may be the region's lowest since the late 1800's.

Some parts of the West had rain and snow last week, but it was too little to help.

The situation is most critical in California, where this year's record light snowpack will bring no relief to prolonged drought.

The outlook by states follows:

Arizona: Snowpack is half to two-thirds of normal. Streamflow is expected to be 20 to 65 percent of normal, but reservoir storage is good.

California: The California Department of Water Resources reports that snowpack is 20 to 40 percent of normal. Reservoir supplies are down to 60 percent of normal.

Colorado: Snowpack is 30 to 40 percent of normal. Most streams will yield 50 to 60 percent of their normal flow.

Idaho: Snowpack ranges from 5 percent of normal in the south to 30 percent in the north. Some south-central rivers will yield only 25 percent of their normal streamflow.

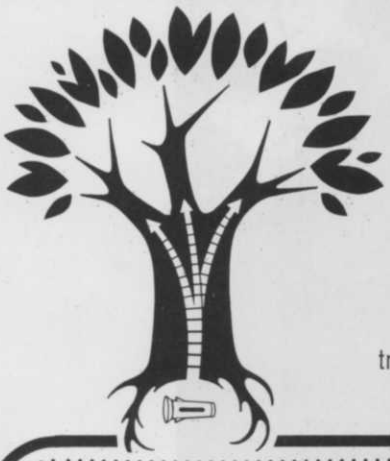
Montana: Snowpack is one-third of normal on the Columbia Basin drainage area and half of normal on the Missouri River drainage. Streamflow in most of the state will be 50 to 60 percent of normal, but the Milk River will yield 90 percent of its normal flow.

Nevada: Snowpack is 5 to 25 percent of normal, and streamflow is expected to be 20 to 30 percent of normal.

Utah: Snowpack is 15 to 40 percent of normal, and some rivers are expected to yield only 15 percent of their normal streamflow.

The streamflow forecasts assume that storms will follow their normal spring patterns. However, if this winter's dry weather continues through March, virtually all western rivers will have record low flows, the conservation agency said.

Snowpack accumulated in winter and spring provides about 70 percent of the western water supply during the year. □



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If you're an arborist or anyone responsible for tree maintenance you will profit from attending one of our MEDICAP dealer/applicator meetings.

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New systemic insecticide program — Profit programs for MEDICAP dealers
JANUARY — FEBRUARY — MARCH MEETINGS

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CLEVELAND, OHIO, Wed., Jan. 12 Holiday Inn—Cleveland/Independence		
ROCHESTER, N.Y., Thurs., Jan. 13 Hilton Inn on the Campus		
FREMONT, NEBR., Tues., Feb. 8 Holiday Lodge		
ST. LOUIS, MO., Thurs., Feb. 10 Holiday Inn—Riverfront		
MILWAUKEE, WISC., Fri., Feb. 25 Hoffman House, 251 N. Mayfair Rd.		
ELMHURST, ILL., Tues., March 8 Holiday Inn, 624 N. York Rd.		
CHAMPAIGN, ILL., Fri., Feb. 11 Ramada Inn—University		
MOLINE, ILL., Thurs., Feb. 24 Holiday Inn—Airport		
INDIANAPOLIS, IND., Wed., March 9 Sheraton Inn, Pendeton Pike Exit off I-465		

NOTE!!! DEALER ATTENDING, PLEASE COMPLETE BELOW!!!

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Meetings scheduled from 10 A.M. until 2:30 P.M. Lunch will be provided (no charge) for one key employee per firm, additional are welcome. Indicate above, location and number attending from your firm.

Clip above schedule and return at least 10 days prior to meeting as confirmation of your attendance.

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For ad on following page circle 117 on free information card ▸

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So, what's the most important feature? That depends on who you are. An operator will like the control convenience; the owner will like the 2200's basic quality, production capability and re-sale value; a mechanic will like how easy it is to work on. All the features add up to a top-quality trencher. Why not let your Ditch Witch dealer give you a free demonstration? For his name, Call Toll Free (800) 654-6481. Charles Machine Works, Inc., P.O. Box 66, Perry, Oklahoma 73077. TWX 910-830-6580.

The Ditch Witch Model 2200 with optional roll over protective structure and flotation tires.

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SINCE 1923

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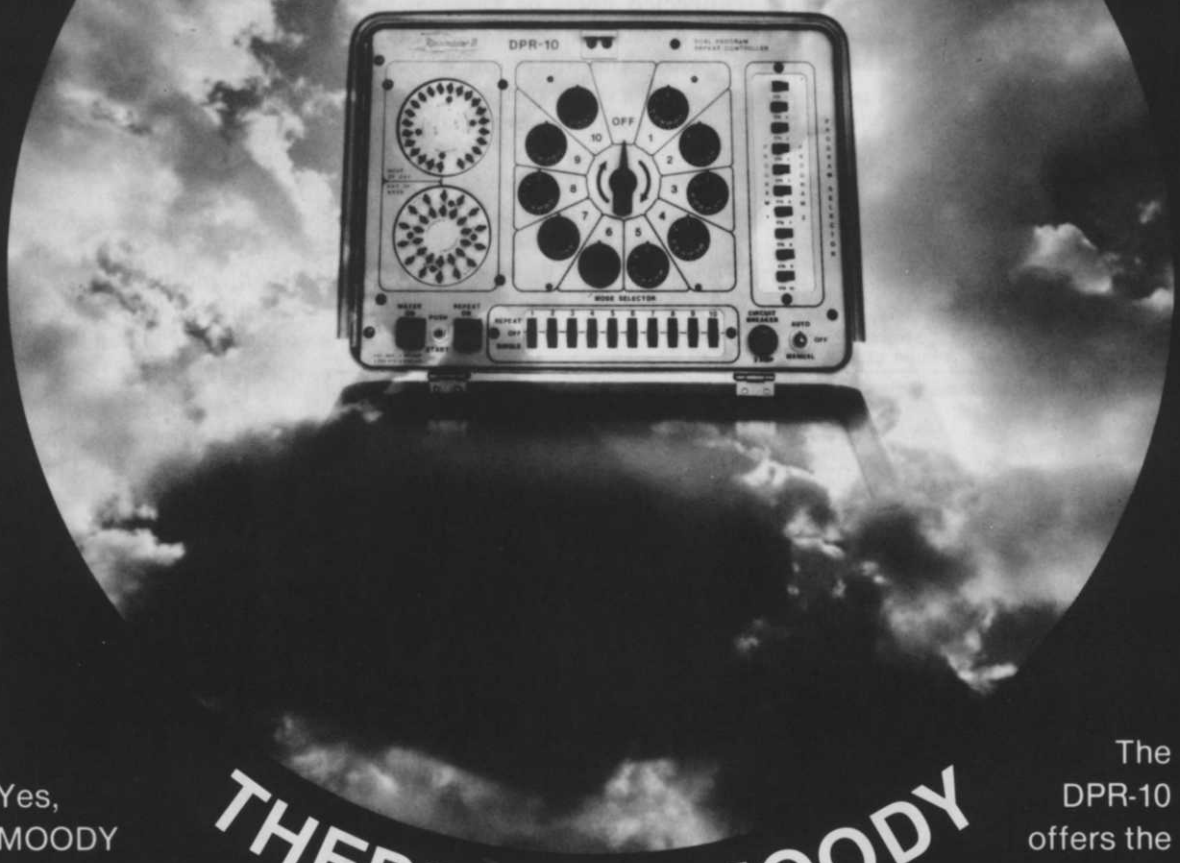

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Circle 135 on free information card

Container soils need variety

Americans by the millions grow plants in containers these days. Yet many do not realize that excellent garden soil rarely makes good container soil.

Why are container soils different?

John A. Wott, Purdue University extension environment horticulturist, explains it this way:

"Soil is a semi-rigid mass composed of fine particles and permeated by a network of interconnected pores or passageways in which water, mineral nutrients, and air move and are retained. Soil acts as a reservoir, storing water and mineral nutrients essential to plant growth and survival."

The mass of soil in a container is distinguished from regular ground bed soils by two important characteristics, he adds. Container soil masses are small, and they are shallow.

The effect of smallness is obvious. The water and mineral reservoir available to container plants is much less than to those growing in ground beds. This reservoir, therefore must be frequently replenished by irrigation and fertilization to maintain equivalent growth in containers.

The effect of container shallowness is less obvious, says Wott. For instance, a sponge, like the soil, is permeated by pores which become full when the sponge is saturated with water. If the sponge is placed flat on a level and filled, water will drip from its bottom side. If, after water ceases to drip from the sponge, it is stood on edge, more water will drip from it. Likewise, after water ceases dripping from it in this position, you turn the sponge on end, more water will drip from it. Both the water content and depth of the sponge change from side to edge to end.

In other words, the deeper the sponge the lesser its water content, points out Wott. This same principle holds true for container soils, he says. The more shallow the container, the wetter its soil following irrigation.

"Actually a 'perched' water table forms at the container bottom even though it has a drainage hole. And like any water table, the deeper it is, the drier the soil above it. Because of this effect of shallowness, an excellent garden soil placed into a container will probably be too wet for good plant growth.

While smallness and shallowness create a dilemma for the soil in a container (inadequate supply of water and minerals), this same soil may be too wet for a plant to absorb even this inadequate supply.

"Smallness can be remedied by frequent irrigation and fertilization," says Wott, "but shallowness must be corrected by the addition of coarse-textured materials, such as sand, sawdust, peat, perlite, bark, vermiculite, etc., to the soil. These create large pores which drain following irrigation." □

Circle 107 on free information card

Sod cutting: You can use your back... or you can use your head.

By using your head, you can save time and money.

The cost of cutting sod isn't just the cost of the equipment you use to do it. It also includes the labor time involved. And at today's wages, time is most definitely money.

That's why the Ryan Jr. Sod Cutter makes sense even for small turf management operations. It can cut up to 135 feet of sod per minute, enabling one man to cut more sod in an hour than six men used to cut in six hours. The Jr. Sod Cutter is self-propelled, easy to handle, and can actually pay for itself in time savings in just one season.

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Whether you manage a small golf course, cemetery, landscape service, school grounds, industrial complex, or park, the Jr. Sod Cutter can save you money by making sod cutting less of a time-consuming job.

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For more information contact: TORO Technology, Dept. WT, 1709 La Costa Meadows Dr., San Marcos, CA 92069. (714) 744-5650.

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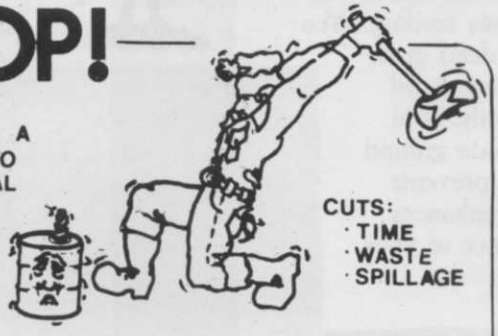

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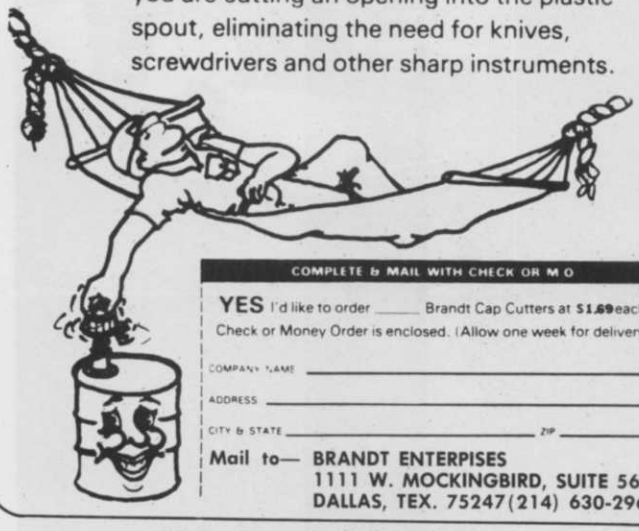

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Check or Money Order is enclosed. (Allow one week for delivery.)

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Meeting Dates

U. of Cal. Short Course, "Greenhouse and Shadehouse Management for the Hobbyist," Riverside, CA, Apr. 7-May 12.

Annual Southern Cal. Turf & Landscape Institute, Anaheim Convention Center, Anaheim, CA, Apr. 20-21

U. of Cal. Short Course, "Drip Irrigation for Home Garden and Landscape," Riverside, CA, Apr. 23.

1977 Arizona Turfgrass Conference, Sunburst Hotel, Scottsdale, AZ, May 4.

Urban Forestry Workshop, Long's Convention Center, Lansing, MI, May 6.

International Society of Arboriculture Conference, San Diego, CA, May 20-23.

Pacific Seedsmen's Association Annual Convention, Del Monte Hyatt House, Monterey, CA, May 20-24.

American Seed Trade Association 94th Annual Convention, Galt House, Louisville, KY, June 25-30.

American Association of Nurserymen 102nd Annual Convention/5th Annual Farwest Nursery, Garden & Supply Show, Seattle Center, WA, Jul. 17-20.

5th Annual Transworld Home Horticulture Lawn, Garden, and Patio Exhibit, ExpoCenter, Chicago, IL. Oct. 14-17.

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For further information on the various models of M&M Brush Chippers, write: Mitts & Merrill, Inc., 109 McCoskry, Saginaw, MI 48601 or Phone 517-752-6191.

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Feed chute folds to enclose the cutter chamber during storage or transportation. It is side hinged so it may be swung away for easy access to cutter chamber.

Other standard features . . .

- Safety-lock pin helps prevent the accidental throw-out of knives not properly tightened.
- All steel rotor made in segments from steel plate and supported by ball bearings.
- Double-edged knives provide twice the cutting time between sharpenings.
- Easy loading is provided by the wide-angle feed chute which is free of obstructions.
- Tubular steel frame and torsion spring axle assure excellent roadability . . . rigidity.
- Integral rotor blower forces chips through discharge chute.

Optional features . . .

"Sound Conditioning"* to reduce noise level • Torque converter reduces shock loads on engine • Engine tachometer to determine optimum rpm • Engine hour meter for positive maintenance schedules • Electric wheel brakes for towing at highway speeds • Flasher warning lights for increased visibility • Engine side panels • Fuel gauge • Ignition cut-off switch from feed chute • Solinoid idle control at feed chute

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mitts & merrill
SUBSIDIARY walco WALCO NATIONAL CORPORATION

109 McCoskry St., Saginaw, Michigan 48601

Product liability insurance skyrocketing

The National Federation of Independent Business recently conducted a Product Liability survey of small businesses. The results, reprinted from the NFIB Speaks Out Newsletter, follow.

1. Approximately three of five small manufacturers surveyed carry product liability insurance. Propensity to carry such coverage is directly related to firm size.

2. One in 12, about nine per cent, of all firms surveyed, cannot afford product liability insurance and another 17 percent cannot afford desired limits. However, less than one percent cannot find anyone to insure them for any price. Almost three percent have "gone bare", once having had insurance and now not being able to afford it.

3. Product liability insurance rates are escalating at an alarming rate.

4. By the end of 1976, product liability claims against surveyed small manufacturers will have doubled over the past five years. Insurance payments to claimants will have risen significantly over the same period as well.

Most claims settled that included some payment to a claimant are relatively small. However, a substantial difference exists between mean payments and median payments due to a few very large financial settlements.

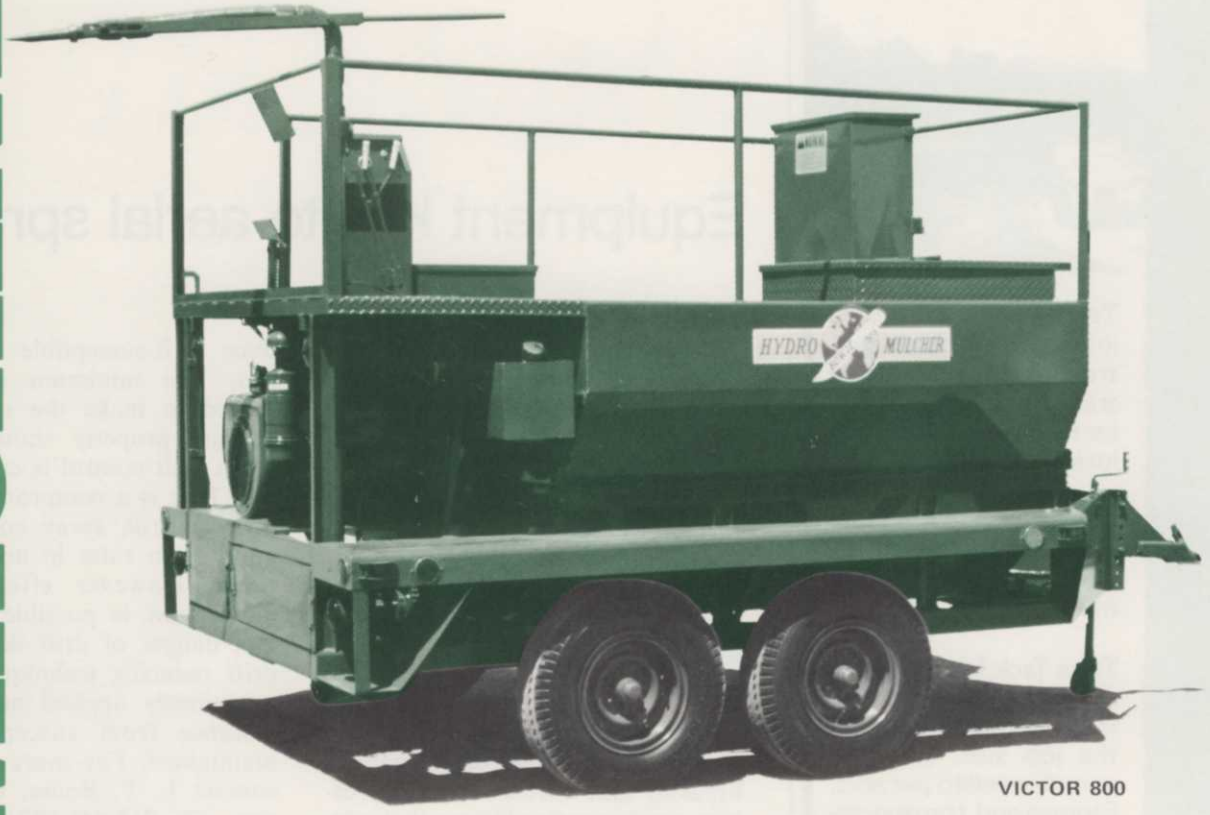
5. Estimated premium payments of surveyed firms for the coming year will be approximately six times larger than payments made by insurers to claimants over the last 4¾ years.

6. The most significant finding of this survey is that one in eight surveyed small manufacturers have failed to develop a new (new for the firm) product and one in 20 is dropping a product due to the inability to obtain product liability insurance, the cost of product liability insurance premiums, or the threat of product liability suits. This type of impact is predominant in the "Chemicals, Petroleum, Rubber and Plastics" sectors.

7. Prior increases in product liability insurance premiums caused 25 percent of the surveyed firms paying premiums to raise the price of their goods, and another 21 percent have raised or will raise their prices due to expected premium increases. □

 Circle 116 on free information card

THE GREEN MACHINE



VICTOR 800

This is the machine that revolutionized the turf industry ... the machine that seeds or sprigs, fertilizes, waters, sprays, and mulches in one easy operation . . . the Bowie Hydro-Mulcher.

Its performance and reliability are unequaled. Its capabilities have created a whole new industry of lawn and turf, ground cover and erosion specialists. The Bowie Hydro-Mulcher is the daddy of them all . . . the green machine.

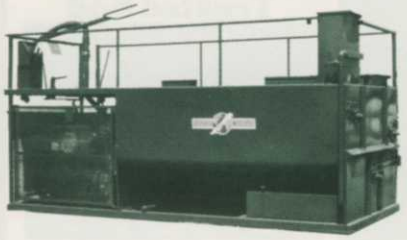
EXCLUSIVE BOWIE HYDRO-MULCHER FEATURES:

- Only proven unit for both sprigging and seeding with cellulose fiber mulches.
- Can mulch, fertilize and seed or sprig half an acre in eight minutes.
- Has enclosed shredder bar for shredding full bales of cellulose fibers.
- Has centralized tower control with no hoses.
- Has triple agitators for faster mixing and eliminating sediment build-up.
- Uses pump only for spraying, so pump lasts longer.
- Slurry passes through pump only once, thus reducing seed damage and clogging.
- Has spray mist and other accessory nozzles for such uses as insect control, tree spraying and fire fighting.
- Six models — from 350 to 3,000 gallon capacity.

CALL OR WRITE FOR COMPLETE DETAILS:

LANCER 350

WINDSOR 1000



IMPERIAL 1500, 2500 & 3000

HYDRO BOWIE MULCHER

BOWIE INDUSTRIES, INC. / P. O. BOX 931 / BOWIE, TEXAS 76230 / (817) 872-2286

Circle 144 on free information card

Terra Tack: Erosion Protection

Terra Tack holds mulch in place for erosion control of newly seeded areas by forming a water insoluble, gelatinous locking membrane.

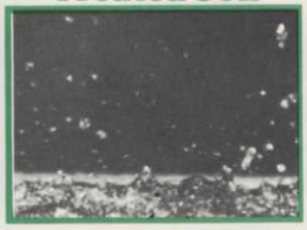
Can be used to bind hay or straw and to secure wood or paper fiber mulches.

Terra Tack formulations are packaged in powder form and are mixed on the job site. Only 40 pounds needed per acre. Storage and transportation costs are at a bare minimum.

Saves equipment. . .
Saves manpower. . .
Gets results!

Untreated Soil

Terra Tack Treated Soil



Grass Growers
P. O. Box 584
Plainfield, N.J. 07061
(201) 755-0923

Circle 102 on free information card

Equipment key to aerial spraying

Effective and efficient application of agricultural chemicals by aircraft depend largely on the selection and proper use of the application equipment.

According to Agricultural Research Service-USDA and Texas Agricultural Experiment Station scientists, sprays which are atomized finer than required usually result in higher drift losses from the target area.

Nozzle orientations which provide a higher degree of mechanical breakup and excessive spray pressure are two major factors that produce drift-susceptible spray droplets. The minimum pressure required to make the spray system operate properly should be used when drift control is critical.

There is a compromise between drift control, spray coverage, and application rates in many applications. However effective aerial application is possible with minimal danger of drift damage when drift reducing techniques are conscientiously applied and adequate distance from susceptible crops maintained. For more information contact L. F. Bouse, College Station, TX. 713-846-8821.

Versatile new Hypro sprayer pump

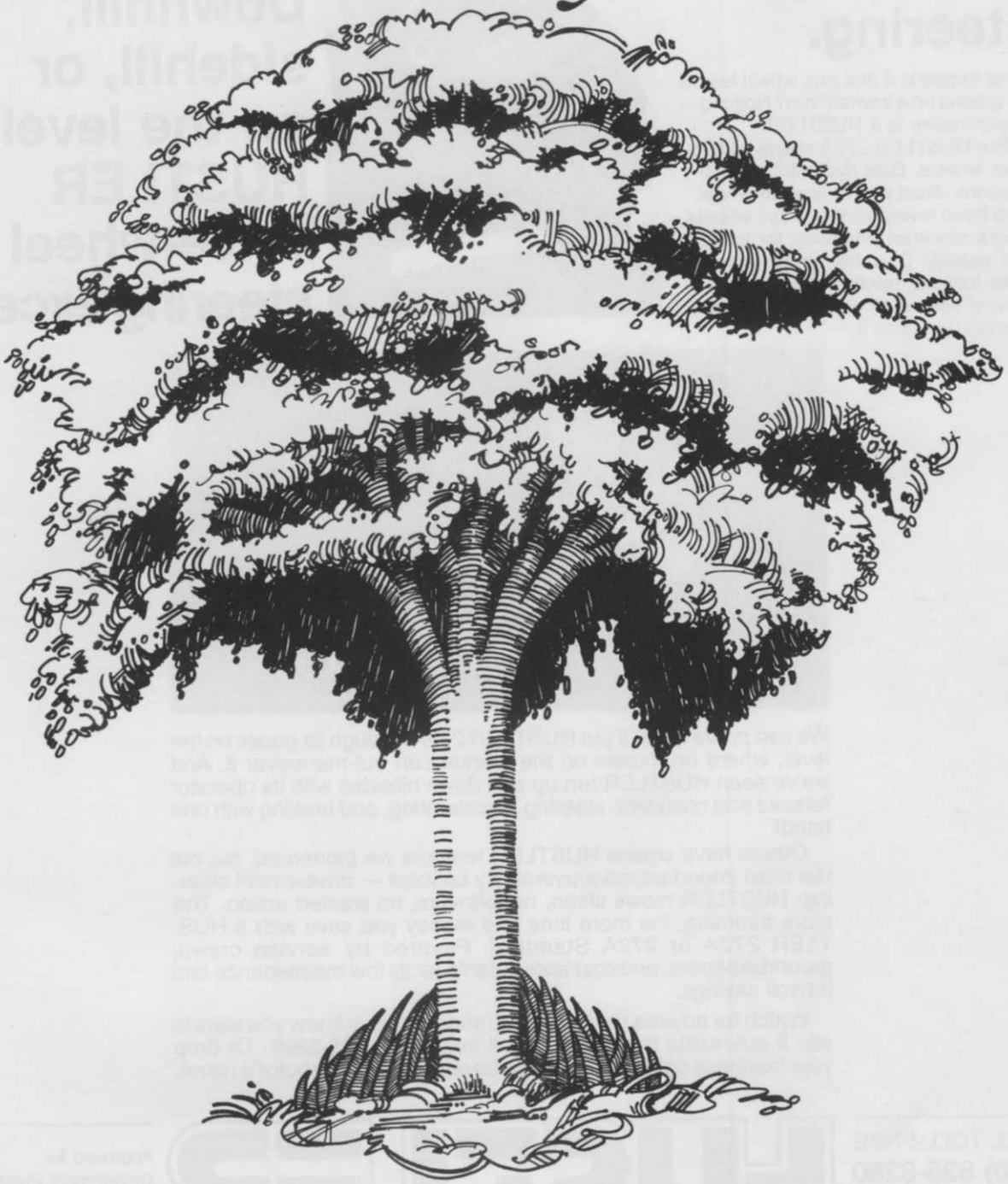
Hypro series 6500 pump has a wide range of uses. It will deliver up to 20 gpm (at 1200 rpm) or develop pressures to 300 psi, and it is available in either cast iron or Ni-Resist. Its ⅝" shaft is stainless steel. Rolling vanes and cartridge type seals are available in a choice of materials.

The pump is designed for weed and insect control chemicals but it is also used for many industrial solvents. It is available with or without a PTO shaft adapter or as a complete pumping unit, model GN6500R, with gas engine and mounting base as shown.

Hypro / LSi
A division of Lear Siegler, Inc.
347 Fifth Ave NW, St. Paul, Minn. 55112

Circle 119 on free information card

The Stately Elm



Help protect the American Elm from Dutch Elm Disease with

***CORREX™**

* Contains DuPont Lignasan BLP™ Fungicide.

A fungicidal aid injected into elms to help prevent infection of the American Elm by Dutch Elm Disease. CORREX arrests the spread of DED if infection is minimal at the time of injection.

Tested and approved by Elm Research Institute, Harrisville, NH.

Call or write for details;

Hopkins
agricultural chemical co.

Box 7532, Madison, WI 53707
608/222-0624

Don't fall for rear-wheel steering.

What happens if that rear wheel leaves the ground on a downhill run? Nothing—if your mower is a HUSTLER.

The HUSTLER 272A steers with its drive wheels. Dual hydrostatic transmissions direct power to each wheel. Dual hand levers control those wheels, weight centered over them for traction and stability. Downhill, as the weight shifts forward, traction actually improves! You keep control. On rear-steer mowers, you lose it.

Downhill, sidehill, or on the level, HUSTLER drive-wheel steering excels.

We can prove it. We'll put HUSTLER 272A through its paces on the level, where no mower on the market can out-maneuver it. And we've seen HUSTLER run up and down hillsides with its operator relaxed and confident, steering, accelerating, and braking with one hand!

Others have copied HUSTLER features we pioneered, but not our most important maneuverability concept — drive-wheel steering. HUSTLER mows clean, no leftovers, no wasted action. The more trimming, the more time and money you save with a HUSTLER 272A or 272A Standard. Favored by service crews, groundskeepers, and cost accountants for its low maintenance and payroll savings.

Watch for an area field demonstration, or let us know you want to see it out-hustle the rest. Call toll-free: **(800) 835-3260**. Or drop your business card in the mail for literature and Distributor's name.

CALL TOLL-FREE
(800) 835-3260
In Kansas and Canada:
(316) 327-4911 collect

HUSTLER
Turf Equipment

Approved for Government Purchase:
GSA# GS-07S-01404
HUD# OAH (CO) n 2012

Excel Industries, Inc. • Box 727WTD • Hesston, KS 67062

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GOODALL

The Goodall Fillies

Introducing the 36 inch cut Goodall Rear Discharge mower. A new design deck allows close trimming on both sides, helps prevent windrows and gives you a clean manicured cut (not that just-cut look). The new variable speed drive gives a wider range of ground speeds. The 3 gallon fuel tank and Hi-Way front caster wheels are standard equipment. This new mower is designed for fine lawns and rough areas. The finger tip control gives the same easy handling and hillside stability and maneuverability as the other Goodall Self-Propelled models. Also available is a new 52 inch rear discharge mower.

Goodall Div. • 1405 Bunton Road • Louisville, Kentucky 40213
Phone 502/459-3811 Telex 204-340

Circle 111 on free information card

Only way to total lawn weed control!

Super D WEEDONE® applied by METER-MISER®

Dealers and Contractors. Need a *METER-MISER?* Contact your Distributor or Amchem.

AMCHEM® AMCHEM PRODUCTS, INC.
Ambler, Pennsylvania 19002

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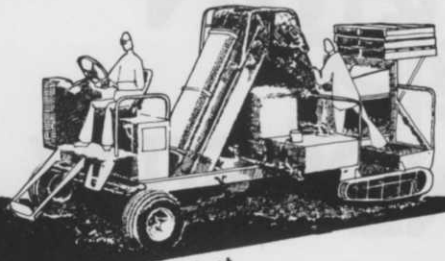
Our Customers Insist

Princeton's "Self-Propelled" Sod Harvester is Unbeatable!



Richard P. Jenks, President
REDETURF, INC.
Hubbard, Oregon

"Redeturf personnel have experience with all commercially available sod harvesters and we feel the Princeton method is the best. We have used the Princeton "Self-Propelled" since 1968 and have cut our labor force enough to pay for several machines."

David W. Picha, General Manager
EMERALD TURF GRASS FARMS
Sumner, Washington

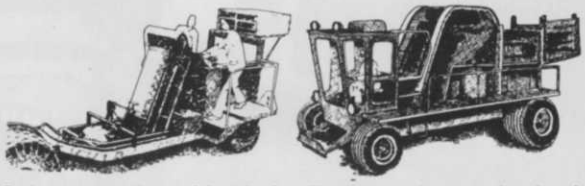
"We harvested over 20 million square feet of sod with a Princeton "Self-Propelled" before the first overhaul."

Stanley F. Cruse, Vice Pres./General Manager
PURSLEY TURF GRASS
Palmetto, Florida

"Harvesting quality turf grass requires quality equipment. That's why we use Princeton."

Our customers say it best. Increase your profits...by reducing costs and increasing production. Three man crew can harvest 22,500 sq. ft. of sod per hour with Princeton's "Self-Propelled" Sod Harvester.

There's a Princeton for Everyone.



Designed to meet the special needs of the smaller volume sod producer. Operates behind any adequately sized, low speed tractor. Exclusive "2 minute hook-up" capability allows complete flexibility in the use of your power supply. With a 3-man crew, harvest up to 13,500 sq. ft. of sod per hour...palletized, ready to ship. The "Tow Boy" Sod Harvester...a *real* Princeton at one third the cost of our larger machines.

The only sod harvester that does it all...with just one man! Cuts, aerates, crosstie stacks, and palletizes 27,000 sq. ft. of sod per hour with a crew of one. Save time, money, and man hours. For the large volume sod producer who wants to increase production *and* profit. The Princeton "Automatic" Sod Harvester.

For additional information write or call collect:

Chuck Braun
Sales Manager
955 W. Walnut Street
Canal Winchester, Ohio 43110
(614) 837-9096

PRINCETON
MANUFACTURING COMPANY

Circle 146 on free information card

LAWN CARE INDUSTRY

DAVEY TREE EXPERT CO. expands Lawnscape service.

Effective March 1, 1977, Davey Lawnscape Service, the chemical lawn care division of The Davey Tree Expert Co., has expanded its Akron, Canton and Cleveland operations and opened new offices in Detroit and Pittsburgh.

"The reason we are expanding our Lawnscape operation is because of the tremendous acceptance this Davey service has received in Akron, Canton and Cleveland over the past two years," said J. Martin Erbaugh, general manager, Lawnscape division.

The new Detroit office, located at 1908 Thunderbird St., Troy, will be managed by Frederick J. Fassett. In Pittsburgh, Gordon L. Ober will head the new operation based at Spring Run Rd., Corapolis.

• • •

HOW MUCH IS THE LAWN of a suburban home worth?

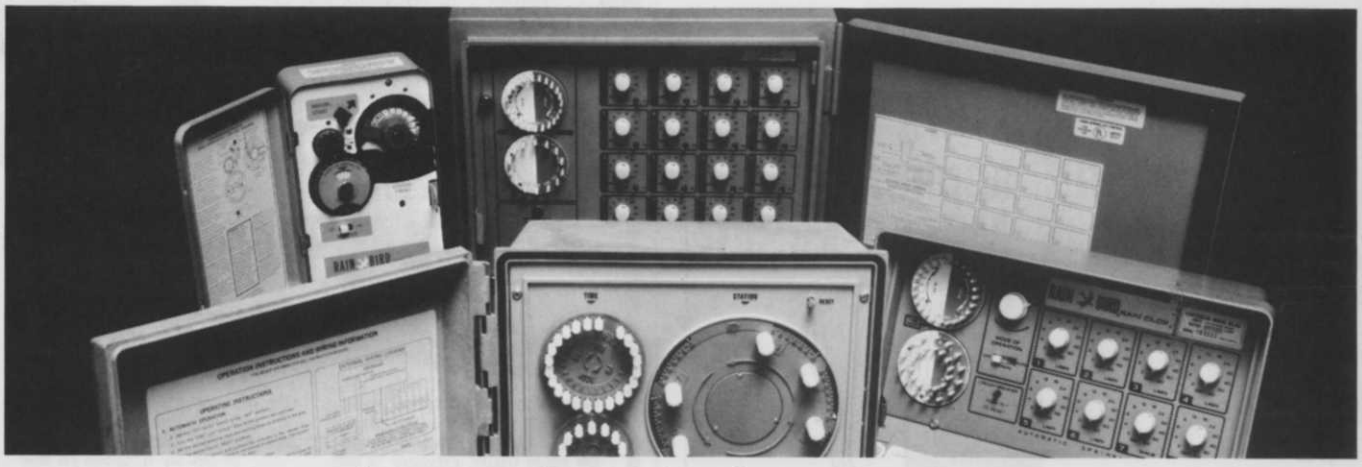
O.M. Scott & Sons decided to find out. They asked an independent research organization to put the question to 98 realtors, located in Chicago, Denver and Northern New Jersey.

In the survey, the realtors first were asked what dollar difference a thick, green, weed-free lawn would make in the sale price of a $45-50,000 home. Their replies indicate that a lawn improved this way would add an average of more than $1,400 to the resale value. Attractive flowers, trees and shrubs, they feel, would add about $1,500 more, for a total of $2,900.

When asked "Why do/don't you think a thick, green, weed-free lawn would increase the speed of the sale?" almost three-fourths of the realtors say it makes a significant difference, and 24 of these cited the importance of a good first impression.

Other reasons given included the way a nice lawn enhances the whole property, the fact that it provides a good guide to the condition of the house and the savings in time and money to the buyer.

• • •



With Rain Bird® controllers, lush landscapes are just a matter of time.

Our controllers help everything grow greener. Just like clockwork.

Whether you need our dual master unit that controls up to 36 satellite units, our basic three station controller, or anything in between for commercial, residential or golf course applications, Rain Bird covers the field — without wasting a drop.

That's because our entire line, including the models you see above, all feature calendars, 24-hour clocks and timing dials that let you select the day, hour and length of rain at each station. And, many of the controllers are capable of shutting down the system automatically when nature pours it on.

Best of all, every Rain Bird® controller is a dependable, hard-working disciplinarian that means satisfaction — for everyone.

So exercise some timely control out on the turf with Rain Bird controllers. Contact your local Rain Bird distributor for complete details.

RAIN BIRD®
Bringing new ideas to life.

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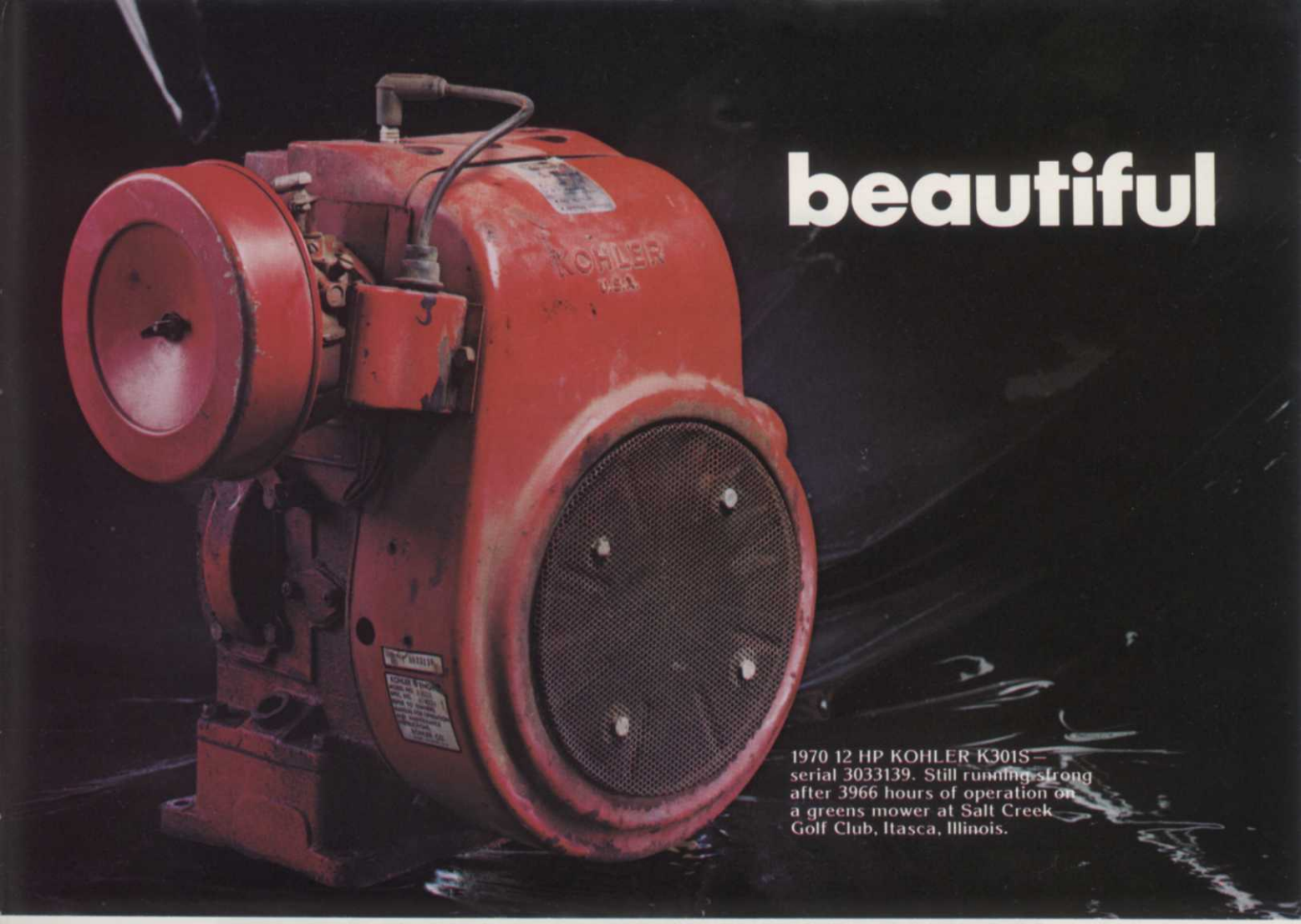

beautiful

1970 12 HP KOHLER K301S—serial 3033139. Still running strong after 3966 hours of operation on a greens mower at Salt Creek Golf Club, Itasca, Illinois.

If your equipment is Kohler powered, you know what we mean by "Beautiful."

You judge the beauty of your equipment in terms of long life, rugged dependability and strong factory service support.

It's the kind of beauty that lasts. Not the shiny paint and flashy chrome kind of beauty, but the kind of beauty that comes with years of dependable performance.

Dependable performance that adds value to your equipment. Value you can measure in hours, days, weeks and years on the job.

This is just one of the many beautiful examples that will convince you to specify Kohler cast iron 4-cycle engines (4 to 23 h.p.) on your equipment.

If you'd like more information on Kohler's Cast Iron beauties, write:

ENGINE DIVISION
KOHLER CO. KOHLER, WISCONSIN 53044

KOHLER

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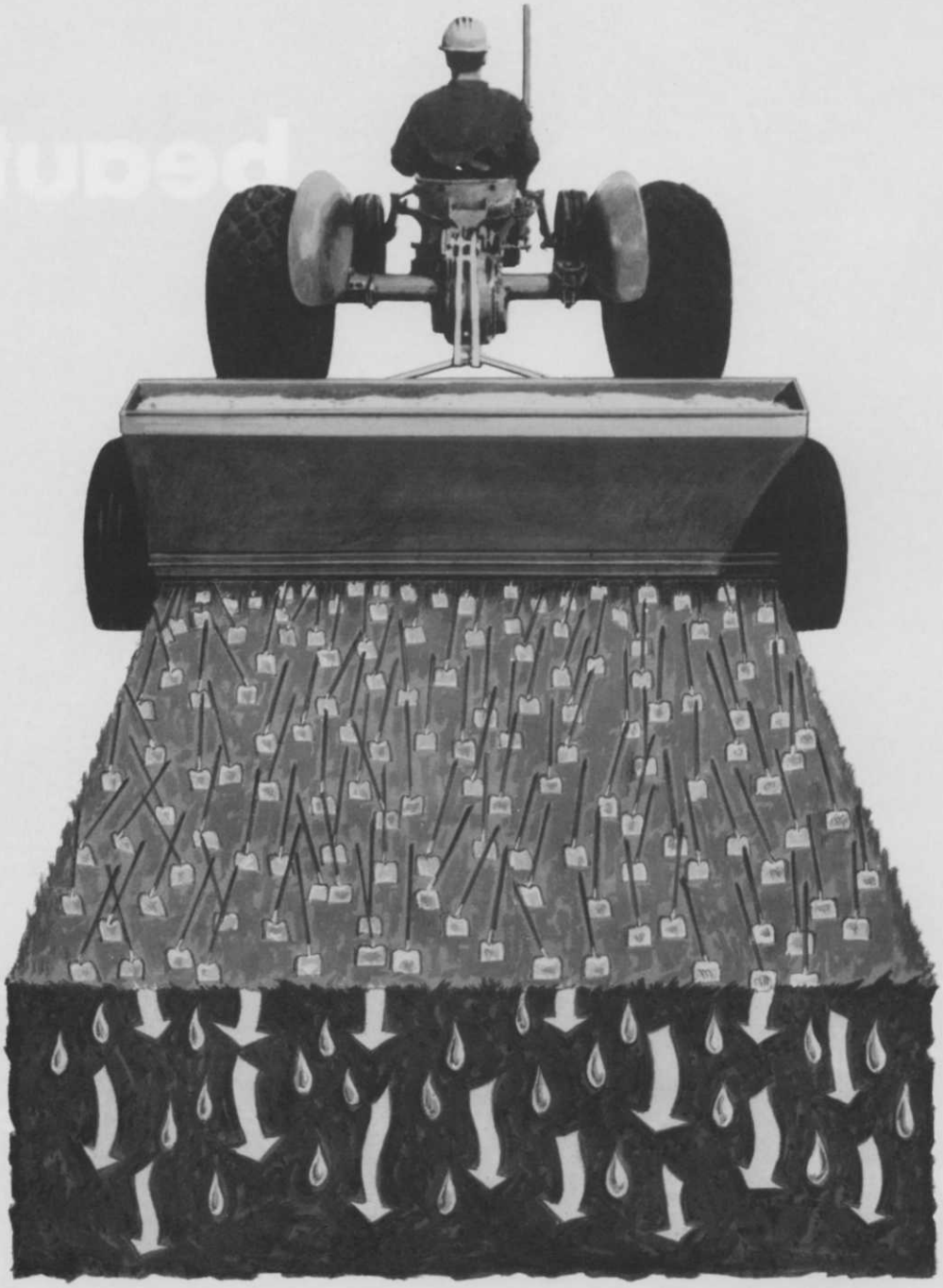

Low cost conditioner loosens clay! Works like millions of tiny hoes.™

Sof'n-soil™ Gypsum works its way down to break up compacted clay soil so it can breathe, lets air and water penetrate, boosts efficiency of costly fertilizers. A natural mineral, Sof'n-soil produces vigorous root systems, promotes growth of grass, trees, shrubs, and flowers. Ecologically safe, Sof'n-soil is not a lime. It's neutral, non-caustic, non-burning—harmless to plants, pets, and people. And here's a bonus: Sof'n-soil supplies soluble calcium and sulfate sulfur in readily available form, stimulates decomposition of organic materials, too. Write to us at 101 S. Wacker Dr., Chicago, Ill. 60606. Dept. WTT-47

CHEMICALS DIVISION
UNITED STATES GYPSUM
Primary supplier of secondary plant nutrients

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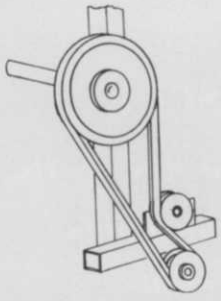
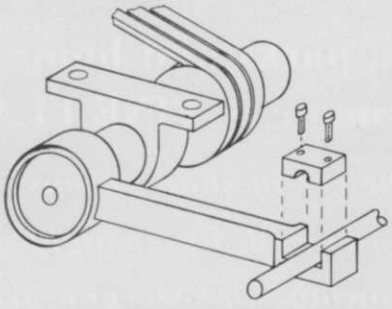
THE BEST
NOW BUILT EVEN BETTER!

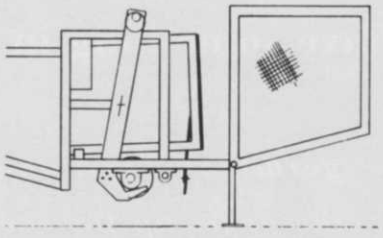
BROUWER MODEL A3A SOD HARVESTER



VARIABLE CUT-OFF DRIVE



SPLIT CONNECTING RODS



O.S.H.A. SAFETY GUARDS

NEW IMPROVED FEATURES INCLUDE —

- ★ Variable Cut-off Drive (Instantly adjusts to desired length)
- ★ Split Connecting Rods (Quick "V" Belt replacement)
- ★ Safety Guards (Head Guard becomes stand for blade changes etc.)
- ★ Many other improved Service & Production features

★★ Variable cut-off drive & split con rods available for previous models.

FOR FULL DETAILED INFORMATION OF THE NEW BROUWER A3A,
or PARTS CONVERSION KITS — CALL OR WRITE

BROUWER
TURF EQUIPMENT LTD.
MANUFACTURER & DISTRIBUTOR

R. R. No. 1, Keswick, Ontario L4P 3C8, Phone: (416) 476-4311

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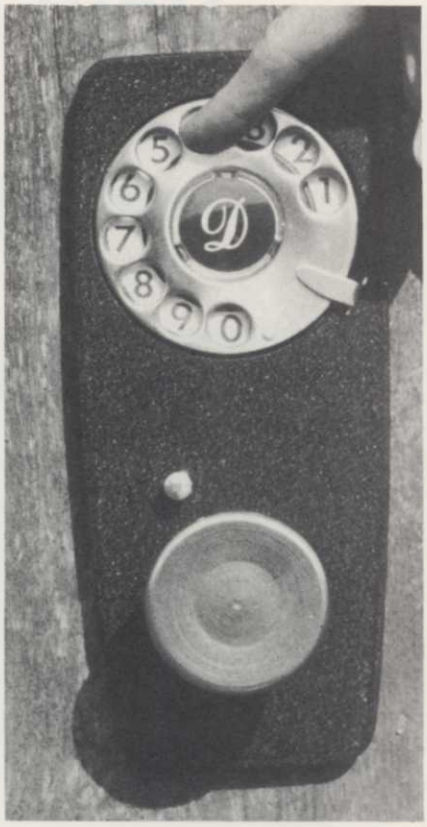
Pick-proof lock available



With burglaries and vandalism on the increase, the publishers of WEEDS TREES & TURF have launched a program to make information available on a new security lock.

The front knob of the lock contains an exclusive slip clutch that adds to the pick-proof features. Intruders can't twist the knob off to gain entry to homes, machine sheds and storage areas. Each lock has an automatic dead locking plunger to prevent entry with a plastic card or thin knife.

The lock opens by dialing a correct sequence of four numbers, much like a telephone. Once closed, the door is secure and can't be reopened without dialing the exact combination again . . . unless the inside bypass has been activated.

Housewives, children and female employees like the lock because there are NO KEYS to fumble with, lose, hide or fall into wrong hands. The unit can also have a number change for added security without calling a locksmith. Each lock carries a full one year warranty.

The lock casing is heavy duty cast aluminum and the parts are self-lubricating. All parts are made of rust or corrosion-resistant materials. □

Most good golf courses, parks and home lawns have something in common — FINE LEAFED FESCUE

Oregon Fine Fescue - *thrives in shady areas, does well in dry spells, germinates fast and blends well. Its straight-growing habit holds the grass up for even mowing, and Oregon grown Red Fescue even creeps to cover the spots left when other grasses fail.*

Oregon Fine Fescue **the grass seed on which the best mixes are built.**

For a brochure and sample, write: Oregon Fine Fescue 1349 Capitol N.E. Salem, Oregon 97303

"In a matter of minutes, a completely untrained person can fertilize with Jobe's Spikes."

Charles Wollett, Manager, Sylvan Abbey Memorial Park, Clearwater, Florida

"A crew of 22 people takes care of more than 5,000 trees and shrubs at Sylvan Abbey. We have live oak, many species of holly, a few palm, some pine and jack oaks, azaleas, Formosas, vibernam and padocarpus. I really like how easy it is to use Jobe's Spikes. We're pleased with them."

In every type of climate and every kind of soil from sand to heavy clay, Jobe's Spikes have proved their effectiveness.

Jobe's Spikes are faster than drilling, better than broadcast fertilizer.

Use Jobe's® Tree and Shrub Spikes, and you feed trees in about one fourth the time and half the cost of drilling. A 5" tree takes about 5 minutes labor, plus $1.50 for 5 Spikes. Compare that to 30 minutes labor to drill holes, plus the time and cost to apply 10 pounds of fertilizer.

Jobe's Spikes are better than broadcast fertilizer because the plant food gets to the tree roots without danger of run-off, burned turf or excessive leaching.

Just pound them in... rainwater does the rest.

Jobe's Spikes are a pre-measured amount of fertilizer formed into easy-to-drive spikes by means of a patented binder. Jobe's Tree and Shrub Spikes are 16-8-8. Evergreen Spikes are 12-6-8. Fruit Tree Spikes are 5-15-15.

A plastic cap makes driving the Spikes easier. Just pound them into moist soil at the dripline at the rate of 1 per inch of trunk diameter.

With Jobe's there's no bulky auger and generator to carry from job to job... no electric wires to tangle... no equipment to eat into profits with maintenance costs. A hammer is all the equipment you need.

Jobe's Spikes baby young trees.

"We lose probably from 12 to 24 trees per year to lightning or disease. These are generally older trees, and we always replace them. We use Jobe's Spikes with these new plantings to help them survive the shock of transplanting and develop a good root system."

Easy, economical, and effective.

University leaching studies have shown that Jobe's Spikes are as effective as fertilizer supplied to trees by conventional drilling methods. The report on the studies states, "The spike will supply nitrogen and potassium to a depth of at least 24 inches. The spike permits the movement of nutrients down through the tree root zone from the surface to the major root areas." Let us know if you'd like a copy of the complete report.

Charles Wollett is saving time and making money with Jobe's. How about you?

Jobe's Evergreen Spikes 12-6-8 and Fruit Tree Spikes 5-15-15 are now available in bulk. They can be combined for shipping with Tree and Shrub Spikes.

Call your local Jobe's distributor or order direct. $30 per case (105 Spikes) prepaid, 5 case minimum. 15 or more cases, $25 per case. 36 or more cases, $21 per case.

Jobe's®
TREE & SHRUB SPIKES

The easy method for professional tree care.
International Spike, Inc., 462 East High St.
Lexington, Kentucky 40508.

THE 44-INSECT INSECTICIDE.

For trees, ornamentals, and turf.
One solution versus 44 problems. Those are pretty good odds.

Especially since you can't always be sure which insects will threaten the valuable trees, turf and ornamentals you protect. And people enjoy.

This broad-spectrum control with SEVIN® carbaryl insecticide takes some of the chance out of your job.

Its versatility also lets you cut down on the need for a large chemical inventory.

STOP! ALL PESTICIDES CAN BE HARMFUL TO HEALTH AND THE ENVIRONMENT IF MISUSED. READ THE LABEL CAREFULLY AND USE ONLY AS DIRECTED.

Why use an array of different brands with different instructions, if you can do the job effectively with a single product? You'll enjoy less nozzle changing, chemical switching and tank flushing. All good reasons to rely on dependable SEVIN.

Use it in any of its available forms to suit your needs. Choose from wettable powders, flowables and liquid SEVIMOL® 4.

And many SEVIN formulations are compatible with most commonly used fungicides, miticides and other insecticides.

With the increased awareness and concern for protecting the environment, it's nice to know that SEVIN carbaryl is biodegradable. It does not build up in the soil or in plant and animal tissue.

Also, when compared with many other insecticides, SEVIN ranks low in toxicity to people, animals, birds and fish.

There's another advantage to using SEVIN in parks, golf courses and other recreational areas–even home yards and gardens. Short re-entry time. Treated areas can be re-entered as soon as the spray dries or dust settles.

PLANTS	INSECTS CONTROLLED
HERBACEOUS ANNUAL, BIENNIAL AND PERENNIAL PLANTS such as carnation, chrysanthemum, gladiolus, iris, peony, zinnia, etc.	blister beetles, boxelder bug, flea beetles, Japanese beetle, June beetles, lace bugs, leafhoppers, leafrollers, mealy bugs, plant bugs, psyllids, rose aphid, thrips (exposed).
SHRUBS, TREES AND WOODY PLANTS such as ash, arborvitae, azalea, barberry, beech, birch, boxwood, catalpa, cedar, cypress, dogwood, elm, euonymus, fir, ginko, hackberry, hawthorn, holly, honeysuckle, hydrangea, juniper, lilac, magnolia, maple, oak, pine, redbud, rose, spruce, sycamore, tulip-tree, etc.	apple aphid, bagworms, birch leaf miner, boxelder bug, boxwood leaf miner, cankerworms, catalpa sphinx, Cooley spruce gall aphid, Eastern spruce gall aphid, elm leaf aphid, elm leaf beetle, elm spanworm, eriophyd mites, gypsy moth, Japanese beetle, June beetles, lace bugs, leafhoppers, leafrollers, mealy bugs, mimosa webworm, oak leaf miner, orange striped oakworm, orange tortrix, periodical cicada, plant bugs, puss caterpillar, rose aphid, roseslug, saw flies (exposed), scale insects, spruce needle miner, tent caterpillars, thorn bug, thrips (exposed), webworms, willow leaf beetles, yellow poplar weevil.
LAWNS, TURF	ants, bluegrass billbug, chiggers, chinch bugs, cutworms, earwigs, European chaffer, fall armyworm, fleas, green June beetle, leafhoppers, millipedes, mosquitoes, sod webworm (lawn moths), ticks.

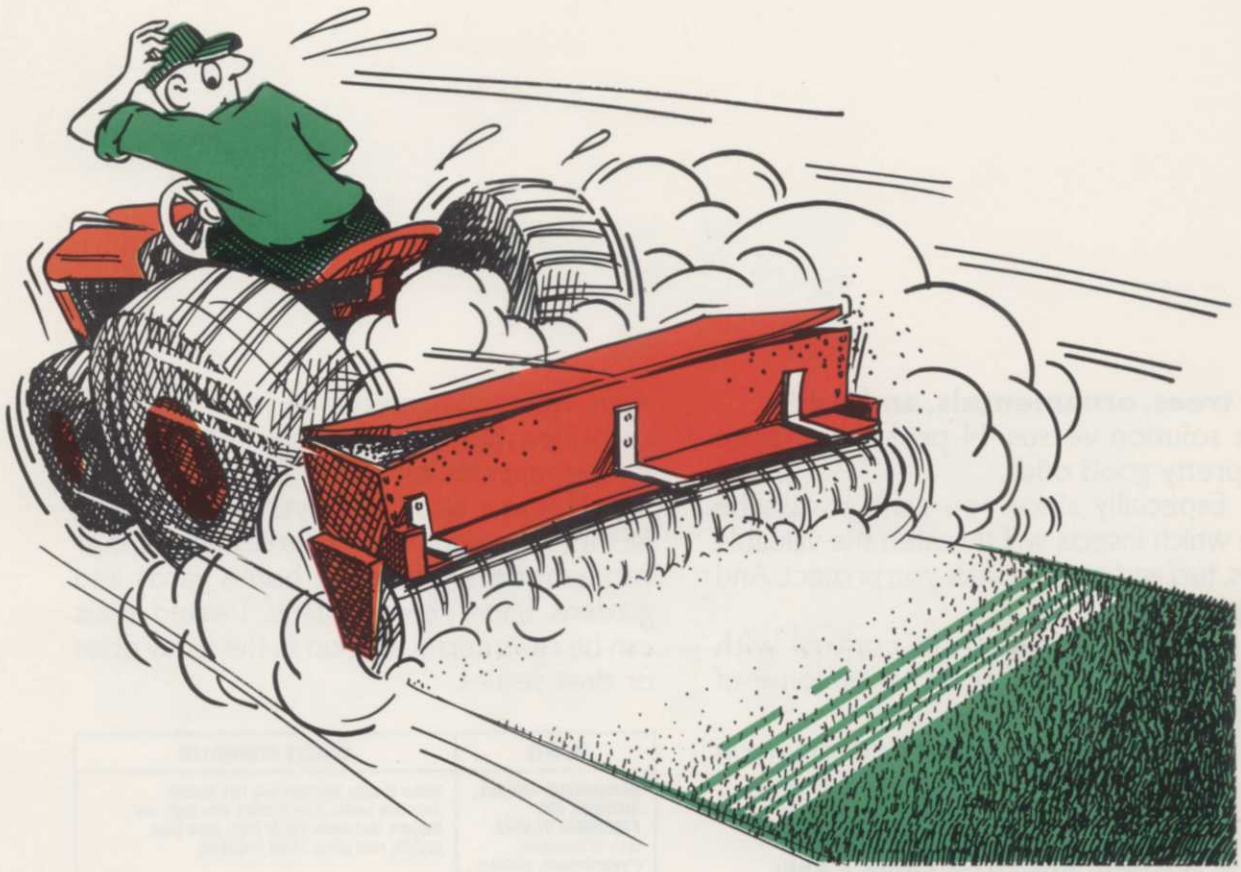
NOTE: SEVIN will injure Boston Ivy, Virginia Creeper, and Maidenhair fern.

Make a quick check of the plants and insects for which SEVIN carbaryl is registered. See how many problems it can solve for you. In all there are over 160 pests on more than 100 plants. This broad registration minimizes the problem of drift to adjacent areas.

This year, ask your pesticide supplier for SEVIN carbaryl–the insecticide with a proven performance record in fighting plant pests.

SEVIN® UNION CARBIDE
CARBARYL INSECTICIDE
STILL THE ANSWER.

SEVIN and SEVIMOL are registered trademarks of Union Carbide Corporation for carbaryl insecticide.
Union Carbide Corporation, Agricultural Products Division, P.O. Box 1906, Salinas, CA 93901.



TOUCHDOWN
...this Elite starts FAST.

Touchdown Kentucky Bluegrass is no slow poke on your fields or fairways. This new variety gives you the quick start not usually associated with Elites—and once it germinates it keeps right on growing sending out vigorous rhizomes and new shoots to quickly give you a turf cover that lets you breathe easy. Faster cover means fewer washouts and blowouts, less competition from moisture and nutrient robbing weeds and a more quickly established turf for sale as sod or play on fairways. Touchdown can be mowed short and its density means you can plant it right up on tees too. You'd expect this with Touchdown's pedigree.

Touchdown was discovered by a professional—Tom Rewinski—Course Superintendent at the famed National Golf Links of America on Long Island. It was first evaluated by Dr. C. R. Funk at the turf grass breeding program at internationally acclaimed Rutgers University. Since Rewinski's discovery, intensive evaluation there and at numerous other institutions Touchdown has received top turf quality ratings.

And it only stands to reason that Touchdown will be a lower cost management grass. More rhizomes and side shoots means growth is directed where you want it—not just mow, mow, mow. Greater levels of disease resistance means fewer costly fungicides and dense aggressive turf means better competition against weeds and Poa annua.

Professional Quality Seed of Certified Touchdown Kentucky Bluegrass is now available.

To find out how great Touchdown is—contact your distributor and try some.

Produced and distributed by

PICKSEEDWEST, Inc.

Box 888, Tangent, OR. 97389 (503) 926-8886

Available from:

Lofts
Pedigreed Seed, Inc.,
Bound Brook, N.J. 08805
(201) 356-8700

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Arlington, Mass. 02174
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Millwaukee, Wis. 53201
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(518) 456-0042

...in Canada: Otto Pick & Sons Seeds Ltd.,

Box 126, Richmond Hill,
Ont. L4C 4X9
(416) 884-1147
Telex: 06 219623

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R.R. 2, Winnipeg, Man.
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(204) 633-0088

Box 151,
St. Hyacinthe, Que.
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(514) 799-4586

Circle 138 on free information card

Princep works around ornamentals.

Princep® herbicide stays where you put it. And since it has practically no foliar action, there's little danger to the plants you spray around.

Princep cleans up your right-of-way and won't hurt your ornamental plantings. It's as simple as that.

What about control? One application of Princep controls most annual grasses and broadleaf weeds.

For a full season.

No other herbicide can give you broad spectrum weed control. Without posing a problem for ornamentals.

This season, talk to your local Princep dealer. Go over the correct rates and the newly expanded list of labelled trees and shrubs, before you spray.

Or, if you'd like, drop us a line. We'll send you our fact sheet.

Agricultural Division, CIBA-GEIGY Corporation, P.O. Box 11422, Greensboro, NC 27409

CIBA–GEIGY

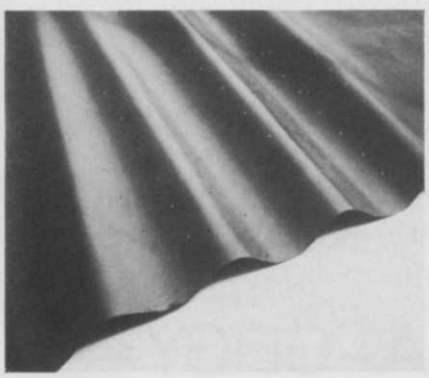
Products

The Gravely division of the Clarke Gravely Corp. is marketing a new 30" rotary mower with re-designed fenders for even, fast grass discharging, added front roller to prevent lawn scalping and for lifting the fenders over obstacles and uneven terrain. The rear discharge design provides superior trimming ability to within a half-inch of obstacles.

Circle 701 on free information card

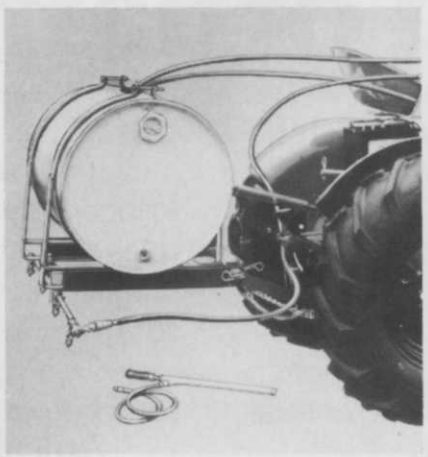
Sto-Cote Products is introducing a high density, cross-laminated, polysheeting sand trap liner which separates sand and soil in golf course sand traps, broad jump pits and children's sand boxes. Marketed as STPL, the liner keeps weeds and roots from growing through into sand areas. Perforations allow necessary drainage, minimizing surface puddling.

Circle 702 on free information card



A new liquid injector attachment capable of injecting nematicides up to three inches deep through small, hollow tines, will be introduced this spring by Ryan. The new attachment is powered by Ryan's Greensaire 11 aerator and connects to any pressurized (150-400 psi) spray tank. The attachment can be installed in approximately 30 minutes. The new attachment can treat up to 8,000 sq. ft. per hour.

Circle 703 on free information card



A new 30 gallon sprayer for Economy Power King and Jim Dandy model tractors will handle liquids, water-soluble chemicals or wettable powders. The sprayer can be used for fertilizer applications or for spraying insects, weeds, trees or bushes. The unit is equipped with a 100 lb. pump, a pressure gauge, suction strainer, shut-off and relief valves, a tree spray nozzle and a spray boom with four nozzles that can be mounted on front or rear of the tractor.

Circle 704 on free information card

Five Star Engineering has developed a heavy-duty industrial auger digger. The Five Star Digger is sold under a three year warranty and fits all tractors with Cat. 1 & 11 3-pt. hitches. Bevel gear is machined and hardened and Woodruff keyed to the output shaft with a reduction of 3.18 to 1. Pinion is one piece with splined input shaft, machined, hardened and straddle mounted between two tapered roller bearings.

Circle 705 on free information card

New from Dedoes, the TCA-550 Two-Drum Aerator tines on approx. 2" centers. Makes a neat, clean hole pattern, 25 inches wide, aerates 5,000 sq. ft. green in less than 15 minutes and leaves it in playable condition. Three pivoting tine sizes: ½", ⅜" and ¾".

Circle 706 on free information card

FYLKING IS A SHOO-IN!

0217® brand Fylking Kentucky bluegrass, the famous Swedish beauty, stands out because of its many improved qualities. An outstanding feature is fast germination, rapid growth that makes sod lifting possible sooner than other varieties. Superior density of rhizomes and root system makes an almost impenetrable sod that helps strangle weeds, prevents invasion.

Purity is a prerequisite. Fylking Kentucky bluegrass contains no annual bluegrass *(Poa annua)*, bentgrass or short-awned foxtail. Fylking is your guarantee of physically pure, genetically true seed.

Fylking Kentucky bluegrass seed costs less than most other elite bluegrasses.

Fine-textured, brilliant green turf from early spring to late fall, Fylking is more drought, disease, traffic, heat, cold and smog resistant.

Low-growing, low-mowing characteristics result in fine professional golf tees and home putting greens; can be mowed low as 1/2-inch.

0217® brand Fylking Kentucky bluegrass is a shoo-in for first choice in any lawn seed mix. Specify the Swedish beauty, Fylking, at your local wholesale seed or sod distributor.

Don't let insects make your turf a jungle.

DURSBAN

For less money than any other major turf insecticide, DURSBAN* brand insecticides can keep more than a dozen insect pests from turning healthy turf into a teeming insect jungle. Chinch bugs, sod webworms, you name it. If it's a major turf insect problem, DURSBAN 2E or more concentrated DURSBAN 4E probably controls it. Economically. Just one application of either product provides several weeks of effective residual insect control. Simply mix with water and spray.

Or call one of our selected custom formulators, and apply a DURSBAN granular formulation straight or in a dry fertilizer mixture.

Life is a big enough jungle without insects tearing up your turf. So for broad-spectrum insect pest control at a very low cost, make DURSBAN insecticides part of your turf program. Just read and follow all label directions and precautions. Agricultural Products Department, Midland, Michigan 48640.

DOW

DOW CHEMICAL U.S.A.

*Trademark of The Dow Chemical Company

Classifieds

USED EQUIPMENT

2 — 50' AERIAL BASKETS — 65 Aerial basket, 2 Asplundh brush chippers. 1 Vermeer tree mover, 1 Vermeer stump cutter. Small hydraulic crane, 2 John Bean sprayers, ten ton tri-axle trailer, 1 Prentice log loader, tractor with front end loader and Bobcat loader, Parkway Tree Service, 120626 W. Cherry, Wauwatosa, Wis. 414 257-1555.

JOHN BEAN MIST BLOWER Model 100, excellent condition, asking $2500, with or without factory trailer, also other smaller Mist-Blowers and Hydraulic sprayers. Smith Tree Service, 1809 Washington Ave., Portland, Maine 04103.

SEVERAL 50 FOOT SERVI-lifts mounted on GMC trucks. Call 401 725-2250.

FOR SALE — 1975 Vermeer Ts-22" tree spade. Mounts on Bobcat or 3 pt. hitch. Excellent condition. $1800.00. 1976 Care tree 30" tree spade. Mounts on Bobcat or 3 pt. hitch. Mint condition. $2995.00. 1976 Care tree 36" tree spade. Mounts on 990 Bobcat, tractor, loader, or dozer. Mint condition. $4495.00. 1972 Vermeer TS-44T tree spade on 1974 GMC 1 ton. New spades. Good condition. $7800.00. Will send photographs upon request. Call or write: Spartan™ Tree Transplanting Equipment Company, 16084 S. Chandler Rd., East Lansing, Michigan 48823. Phone 517 351-1370. (We buy, sell, and repair high quality tree transplanting equipment).

1970 HIRANGER mounted on 1970 F-600 Ford truck with chip box and side tool boxes. Very good condition, $22,500.00. 1974 HiRanger mounted on 1974 F-600 Ford truck with chip box and side tool boxes. Very good condition, $28,500.00. Clearing Nicolas mulcher, can be attached to hydro-Ax or 3 point hitch on tractor, $5,500.00. Osborne Tree Service, Mentor, Ohio 44060. 216 255-9109.

MYERS 200 gallon hydraulic sprayer: Axle mounted with brakes; 30 gallon fresh water tank; 25 gpm: 500 psi. $2980.00. Woods Tree Service, 5846 Myers Road, Akron, Ohio 44319. 216 882-3735.

TWO REINCO HG.10 hydroseeders. Set up for remote operation; easily converted for tower operation. Less than one year old. Excellent condition $4975.00 each. Professional Turf Corporation, Gaithersburg, Maryland. 301 948-5252.

52 FOOR HI-RANGER on 1969 Chev. 2-ton 1971 Chev. 2-ton Chip truck, 27 foot Mini-lift goes through 30" gate. All equipment in A-1 shape. Phone 303 542-3532.

FOR SALE: New Rogers 524-100 Aero-Seeder $1350, used National 84 Triplex mower — $500, used Locke 75R Triplex mower — $750. Hugh J. Schultz, Inc., 814 838-3733, Fairview, Pa.

EZEE FLOW SPREADER No. 105, 5 foot, 500 lbs. capacity, used only once — excellent shape, $550.00. Meadors' Lawn and Grounds Maintenance, Danville, Virginia 24541. 804 799-2083.

110' TELESCOPIC CRANE on 1974 Ford F750, excellent condition, 10,000 miles, photos on request, $17,500. Midstate Tree Service, Milaca, Minn. 56353. 612 983-2336 after 5:00 P.M.

FIVE GANG ROSEMAN MOWERS, one reconditioned set $1500, one set as is $1000. Gold Star Sod Farms, Inc., Canterbury, NH 03224. Phone 603 783-4717.

VERMEER TS44T on 1969 Chev. C50, ready to work, pictures and price on request. 208 664-5914. 821 4th St., Coeur d'Alene, Idaho 83814.

5 FT. BRILLION Grass seeder, almost new $500.00. Two Toro "Professionals" "72" cut with sulky. $1,100.00 for both. Phone 617 668-0301.

½ YARD DILLION PASTEURIZER — Completely rebuilt in 1970 by MFG. $500.00. Ziminski Nursery, 1789 Jerusalem Ave., Merrick, N.Y. 11566. 516 826-4986.

FOR SALE Vermeer stump chipper model 10, very good condition, $2,000.00. Bombaci Tree Experts, Esses, Conn. 06426. Phone 203 767-1752.

FOR SALE: 2 Ryan sod cutters with Roll Ryder attachment. Phone 815 427-8463.

FOR SALE: Bean Rotomist $9,000.00. 303 284-6377.

SEEDS

SOD QUALITY Seeds Merion, Fylking, Delta, Park, Newport, Nugget, Adelphi, Cheri, Glade and Baron bluegrasses also fine fescues. Manhattan rye grass. Custom mixing available. Michigan State Seed Co., Grand Ledge, Michigan 48837. Phone 517 627-2164.

HELP WANTED

SALES HELP WANTED — A.A.A. Tree Service looking for men with sales experience. Year around work, age no factor, also tree climber with or without own equipment. Henry Hardy, P.O. Box 6173, Orlando, Fla. 32803. Phone 305 339-5242.

LANDSCAPE DESIGN-BUILD SALES Opportunity for energetic person with education and/or experience in landscape sales. Position involves sales in commercial and multi-family residential design-build landscaping. Landscaping Maintenance Sales opportunity for sales oriented person with background in ornamental horticulture or turf. Position involves sales in commercial and multi-family residential maintenance. Arboriculture Sales Position involves sales tocommercial and residential prospects. Salary (commensurate with epxerience and ability), car allowance, insurance program, pension, bonus, an opportunity with a growth-oriented, established firm in Metro-Chicago. Please indicate experience, education, references, and salary expected along with a recent photo to Box 163, Weeds Trees and Turf, P.O. Box 6951, Cleveland, Ohio 44101. An equal opportunity employer.

ASSISTANT SUPERINTENDENT or Grounds Foreman, attractive memorial gardens located in North Midwest has an excellent opportunity for an experienced assistant superintendent or a grounds foreman. Applicant should have a minimum of five years cemetery experience and at least two years in a supervisory position. All inquiries strictly confidential. Please send resume to Box 160, Weeds, Trees & Turf, Box 6951, Cleveland, Ohio 44101.

REAL ESTATE

TWO MUCK FARMS, 500 acres and 200 acres, approximately seven miles south of Lansing, Michigan. Large, well drained, fields of deep muck, (some peat) accessible by 3½ miles of all-weather roads. Twelve inch well for irrigation. Ideal for vegetable or sod farm. Owner will sell all or part on land contract, 25% down, if desirable will lease portion back on a long term basis. For further information contact Box 165, Weeds Trees and Turf, Box 6951, Cleveland, Ohio 44101.

WANTED TO BUY

USED BROUWER sod harvester. 18" rolls, gas or diesel. Call evenings 313 772-6893.

FOR SALE

SEWAGE TREATMENT PLANT — two 11,000 gallon units in series. Can be used singly. Plant was operating until municipal system was employed. Bargain price of $12,-000.00 or will trade for used mobile homes or "what have you". Mayo Mobile Homes, Trexlertown, Penna. 18087.

FOR SALE complete tree service company on West Coast. Grosses over $350,000.00 per year. Good potential for expansion. 26 pieces of equipment, plus office equipment and miscellaneous tools and equipment. Box 164, Weeds, Trees & Turf, P.O. Box 6951, Cleveland, Ohio 44101.

FOR SALE — Sod Company: Indianapolis area 60 acres, 40 harvestable in 1977. Limited equipment, irrigated leased ground. Best offer over $40,000. Call: 317 873-2935.

BUSINESS OPPORTUNITIES

EXCLUSIVE FRANCHISE AVAILABLE to the right person. Requirements — 100 to 300 acres of good farm land. One or two people willing to learn and work. Payoff — a competitive advantage in the growing lawn grass sod market. We know the business and are looking for winners only! Beck Mfg. Co., P.O. Box 2014, Auburn, Alabama 36830.

SOD

TISCHLER ZOYSIA GRASS FARM, 4206 Medical Parkway, Austin, Texas 78756.

Circle 140 on free information card

◀ For ad on preceding page circle 139 on free information card

The New Yorkers Who Hustle the Wind.

Street life in a metropolitan area often inspires genius. And that genius can be funneled two ways—good or bad.

The 11th Street Movement in Manhattan's Lower East Side has funneled their genius on the good side with a unique energy saving project involving windmills and solar panels.

This project is just part of the Emergency Energy Conservation Program operated by the Community Services Administration. CSA has established many demonstration programs designed to find new and better ways to help the poor and elderly cope with what for them is a continuing energy crisis.

The program has a broad base, covering everything from development of low cost solar heating and wind generators to experiments with energy conserving farming technologies.

But helping people help themselves isn't an easy task. Simply put, it demands community support—Your support and the support of local and state governments.

If you think this effort is worthwhile, take action, contact your local Community Action Agency or Community Services Administration Washington, D.C. 20506.

There are thousands of people who want to help themselves. Like the 11th Street Movement—they learned how to catch the wind, so they'll no longer be a victim of the elements.

COMMUNITY SERVICES ADMINISTRATION

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Here's the 72" out-front rotary mower that doesn't slip and slide all over side slopes.

When we designed this Jacobsen out-front commercial, we knew it could do all of the things we wanted it to.
Like mow up to 30 acres a day. Climb up and down curbs. Trim tight around trees. And with optional accessories, it can mulch leaves, plow snow or blow snow. And even sweep.

The trick was to distribute the weight so it would grip the turf with all six wheels when angling along side slopes.

Cutter deck tilts up and down for mowing gullies and bank edges.

Front wheels support cutter deck for super stability.

That's why the cutting deck is mounted on the carrier, with the two front wheels supporting it. This design keeps the rear wheels from lifting, and makes the Jacobsen the most stable out-front rotary on the market.

Not only that, the weight on the drive wheels can be adjusted for different terrain conditions. For reliable traction.

This is the only 72" out-front rotary that meets the tough safety standards of the American National Standards Institute, Inc. (ANSI). No mean feat in itself.

Can perform zero turning radius, trims like a small mower.

We suggest you ask your Jacobsen distributor for a demonstration of this superbly designed mower-trimmer-mulcher-sweeper-snow blower-plow-combination-miracle-machine.

It's the one that digs in on side slopes.

Jacobsen Manufacturing Company, Racine, Wisconsin 53403

JACOBSEN®

An Allegheny Ludlum Industries Company

Take a look at leadership.

Circle 114 on free information card

Don't pick baron* KENTUCKY BLUEGRASS just because of its rich green color or quick germination...

Pick baron because it meets all your needs.

When comparing bluegrass varieties, a good rule of thumb is. . .**pick the most versatile bluegrass you can buy.** Naturally you want a grass that has a deep rich color, a grass that has high disease resistance and one that blends well. You expect that. But you may need more from your bluegrass.

1. If your need is for a bluegrass that can stand low temperatures. . .Baron endured -40°C temperatures in University of Minnesota cold hardiness studies. It is recommended for every cold climate state in the U.S. Or, if your need is for a bluegrass that tolerates extremely warm weather. . .in University of Maryland and Virginia Polytechnic Institute and State University studies, Baron ranked among the top for endurance to hot and humid summer stress conditions.

2. If *Poa annua* is a problem, you'll certainly want to look at Baron. . . University of Illinois studies ranked Baron in one of the top three bluegrass categories for competition against *Poa annua* and other unwanted grasses.

3. Wear tolerance studies conducted by Dr. James Beard, formerly of Michigan State University, ranked Baron third among 18 leading bluegrass cultivars tested.

4. If you are a sod farmer, you need a quick stand and good sod strength. . . Michigan State University studies placed Baron in the best group for rapid sod development and superior sod strength.

5. If you need to cut Baron Kentucky Bluegrass as low as ¾" all summer long, go ahead! Baron's low growing blades bend down to a low angle escaping the mower blade. . .leaving more foliage for a healthier green plant.

6. A bluegrass requiring less fertilizer is always welcome. Baron consistently outperforms other bluegrasses in low fertility trials as documented by Michigan State University. Just three pounds of nitrogen per 1000 square feet applied annually in a balanced fertilizer. Substantially better than Merion and other high fertility requiring varieties.

7. When you need your supply of Baron, you'll find it's practically just around the corner. Baron is stocked by leading seed houses and distributors located throughout the U.S. and Canada.

8. And the price is right. Compare prices of other top bluegrass varieties and you'll be pleased with Baron's price.

Pick a bluegrass that meets **all your** needs. You'll pick versatile, durable, and reliable Baron Kentucky Bluegrass. Baron is only available as certified seed.

LOFTS

Lofts Pedigreed Seed, Inc.

Bound Brook, N.J. 08805/(201) 356-8700

Lofts/New England	Loft Kellogg Seed Co.	Great Western Seed Co.	Lofts/New York	Oseco Ltd.
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*U.S. Plant Patent #3186, Dwarf Variety

Circle 151 on free information card